



**Course Offerings Bulletin  
2021-2022**



**THE OHIO STATE  
UNIVERSITY**



## 2021 – 2022 Course Offerings Bulletin

Course information (title, credit hours, level, description, etc.) begins on page one. The most current information regarding new courses, changes to existing courses, Quarter to Semester conversion information, credit hours, sections, days, times, buildings, rooms, and instructors may be found on the Web at <http://registrar.osu.edu/courses> and <http://registrar.osu.edu/scheduling>.

### Explanation of a Course Listing

#### I. Course Heading Information

##### 1102.01 Beginning French II Classroom U 4

Course Number: 1102.01

Course Title: Beginning French II Classroom

Instructional Level: U

U = Undergraduate  
G = Graduate  
D = Dentistry  
M = Medicine  
L = Law  
O = Optometry  
P = Pharmacy  
V = Veterinary Medicine

Credit Hours: 4

#### II. Main Course Description

Continued study of French; development of listening, reading, speaking, and writing skills; readings based on contemporary French culture and literature. Taught in French.

#### III. Course Attributes

Prereq: 1101.01, or completion of 4 cr hrs of 1101.51. Not open to students with credit for 102.01. This course is available for EM credit. GE for lang course. FL Admis Cond course.

Semester of offering (not displayed in example): Au, Sp Sems. Su Term.

Au = Autumn Semester  
Sp = Spring Semester  
Su = Summer Term

Prerequisite(s): 1101.01, or completion of 4 cr hrs of 1101.51.

The course number(s) or other information indicate the preparation or classification required to enroll in the course. If no department name is

listed, the number(s) refers to the specific course within the same department. If a department name is listed, all course numbers following that name belong to that department name until another is listed (e.g., Math 1101, 1102, 1103, Chem 1101, and 1102). Enrollment in a course requires the successful completion of all prerequisites or their equivalents. The department, school, or college office should be consulted with questions of eligibility to take a course.

Exclusionary clause: Not open to students with credit for 102.01.

Students who have taken the listed courses or belong to any other categories listed in the exclusionary clause are not eligible to enroll in the course.

Repeatability clause (not displayed in example): Repeatable to a maximum of 10 cr hrs or 4 completions.

Indicates the maximum number of credit hours and/or the maximum number of completions a course may be repeated for credit (whichever limit is reached first).

Satisfactory/Unsatisfactory grading clause (not displayed in example): This course is graded S/U.

Indicates that a course is graded on an S/U basis rather than the standard letter grading system.

EM credit clause: This course is available for EM credit.

Indicates that a course is available for a type of exam credit.

GE clause: GE for lang course.

Indicates that the course may be used to meet one or many of the University's General Education requirements. Students should consult their specific college or adviser before scheduling courses to be applied to this requirement.

Admissions condition clause: FL Admis Cond course.

Indicates that the course may be used to fulfill an admission condition.

Cross-listing clause (not displayed in example): Cross-listed in English.

Indicates that the course is cross-listed with a course in another subject. The course shares a vast majority of its content with the cross-listed course, and instances of these courses are typically taught by the same instructor, in the same space, and at the same time during a semester. Courses usually share the same course number (in which case only the subject will be present in the clause), but where they do not, the number of the cross-listed course will be given.

## University Classification and Course Numbering System

The system of numbering courses offered by the University is as follows:

**1000-1099:** Undergraduate non-credit courses for orientation, remedial, or other non-college-level experiences. These courses are in addition to a program's graduation requirements.

**1100-1999:** Introductory, required or elective courses that may be prerequisite to other courses. They provide undergraduate credit, but do not count toward a major or field of specialization.

**2000-2999:** Intermediate courses providing undergraduate credit and may be counted toward a major or field of specialization.

**3000-3999:** Upper-level courses providing undergraduate credit that may be counted toward a major or field of specialization.

**4000-4999:** Advanced undergraduate courses providing undergraduate credit that may be counted toward a major or field of specialization. Graduate students may enroll in and receive graduate credit for 4000-level courses outside their own graduate program.

**5000-5999:** Courses that are regularly offered for both graduate and undergraduate credit. They are advanced-level undergraduate courses providing undergraduate credit that may be counted toward a major or field of specialization, or are foundational course work and research for graduate and professional credit.

**6000-6999:** Foundational graduate and professional courses and research providing graduate or professional credit.

**7000-7999:** Intermediate graduate and professional courses and research providing graduate or professional credit.

**8000-8999:** Advanced graduate and professional courses and research providing graduate or professional credit.

Editor: Emily Guthrie, Course Coordinator, University Registrar

Photo: Orton Hall Display, replica of *Cryolophosaurus ellioti*  
Courtesy of University Communications

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## Academic Affairs

**1100.07 Office of Diversity and Inclusion Young Scholars Program Seminar** U 2

Workshops and course discussion designed to teach study strategies and engage students in personal development for college success. Instructors will help students incorporate new tools, resources, and strategies for greater academic engagement. Students will also participate in activities to increase confidence, personal awareness, and explore social constructs impacting their college experience.

Prereq: Young Scholars Program scholarship recipient.

**1101 Personal Financial Health Seminar** U 2

Assist students with mastering the fundamental elements of personal finance and to help them make financially responsible decisions. Instructors will help students utilize learned skills to support their ability to manage their savings, scholarship awards and financial aid, and income to become financially independent, and to demonstrate financial success as an undergraduate and beyond.

Prereq: Enrollment in Young Scholars Program.

**2021 Diversity, Service and Social Justice: A Blueprint for Dynamic Leadership** U 3

This course will expose students to the key elements and character traits that influence dynamic and successful leadership. In specific, students will learn that diversity, service and social justice are inextricably linked and fundamental to the development of an effective leader. Participants will engage in interactive activities and discussions led by the instructor and visiting lecturers.

## Accounting and Management Information Systems

**1200 Survey of Accounting** U 1

An examination of the role of accounting in organizations and society, accounting fundamentals, careers in accounting and the professional skills required for success.

**2000 Foundations of Accounting** U 3

A survey of accounting for non-business students; financial statements and analysis; accounting for assets, liabilities and owners' equity; and elements of managerial accounting. Prereq: Not open to students with credit for 2200 (211), 2300 (212), or 310.

**2200 Introduction to Accounting I** U 3

Preparation and use of accounting reports for business entities; focus on uses of accounting for external reporting, emphasizing accounting as a provider of financial information. Prereq: Econ 2001.01 (200), or equiv. Not open to students with credit for 2000 (310) or 211, or equiv. This course is available for EM credit.

**2200H Introduction to Accounting I** U 3

Structure and use of financial reports; role of accounting and auditing in markets and organizations.

Prereq: Honors standing, and Soph standing. Not open to students with credit for 211H.

**2300 Introduction to Accounting II** U 3

The uses of accounting reports by managers to make business decisions and to control business operations; focus is on the internal use of accounting information.

Prereq: 2200 (211) and Econ 2001.01 (200), or equiv. Not open to students with credit for 2000 (310) or 212, or equiv. This course is available for EM credit.

**2300H Introduction to Accounting II** U 3

Use of accounting information in management control, with ties to the economic theory of the firm. Emphasizes classroom discussion and student presentations.

Prereq: Honors standing, and a grade of B or above in 2200H, and Soph standing. Not open to students with credit for 212H.

**3100H Quantitative Analysis in Accounting** U 3

Accounting information system applications of linear algebra are explored including a subspaces representation of double entry accounting structure, a probability assignment description of a decision maker's uncertain state of knowledge, and Bayesian belief updating description of information processing including projections for the case of linear or Gaussian conditional expectations.

Prereq: Honors standing, a grade of B or better in 2200H, and Soph standing. Not open to students with credit for 4780H.

**3193 Individual Studies** U 1 - 6

Individual study projects in selected areas in Accounting and Information Systems.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.

**3194 Group Studies** U 1 - 6

Group study projects in selected areas in Accounting and Information Systems.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.

**3200 Financial Accounting I** U 3

Theory and application of accounting techniques to record and report financial information; asset and liability valuation; income measurement; first of two-course sequence.

Prereq: 2300 (212), BusMgt 2320 (330), 2321 (331), BusMHR 2292 (BusAdm 499.01), and Jr standing; or permission of instructor. Not open to students with credit for 3200.02 or 521.

**3200H Financial Accounting I** U 3

Economic role of financial reporting in markets and how it is influenced by the regulatory environment.

Prereq: Honors standing, and a grade of B or above in 2300H. Not open to students with credit for 519H.

**3201 Financial Accounting II** U 3

Theory and application of accounting techniques to record and report financial information; asset and liability valuation; income measurement; second of two-course sequence.

Prereq: 3200, 3200.02, or BusMHR 2292 (BusAdm 499.01); or permission of instructor. Not open to students with credit for 3201.02 or 523.

**3201H Financial Accounting II** U 3

Study of theory and practice of financial accounting.

Prereq: Honors standing, and a grade of B or above in 3200H. Not open to students with credit for 520H.

**3300 Cost Accounting** U 3

Managerial decision making in organizations with an emphasis on the use of financial data; theory and practice of management control.

Prereq: 2300 (212), BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01); or permission of instructor. Not open to students with credit for 525.

**3300H Cost Accounting** U 3

Theory and practice of management control with an emphasis on performance evaluation and reward.

Prereq: Honors standing, and a grade of B or above in 2300H. Not open to students with credit for 525H.

**3400 Tax Accounting I** U 3

Fundamentals of the federal income tax, and how it influences taxpayer decisions. Emphasis is on the individuals and businesses organized as proprietorships, but rules generally applicable to all taxpayers are covered.

Prereq: A grade of B or above in 2300H, or 3200 and BusMHR 2292.

**3400H Tax Accounting I** U 3

Fundamentals of the federal income tax, and how it influences taxpayer decisions. Emphasis is on individuals and businesses organized as proprietorships, but rules generally applicable to all taxpayers are covered.

Prereq: Honors standing, and a grade of B or above in 2300H.

**3600 Introduction to Accounting Information Systems** U 3

The design of accounting information systems; focus is on business processes and internal control.

Prereq: 3200 or 521, and BusMHR 2292 (BusAdm 499.01); or permission of instructor. Not open to students with credit for 631.

**3600H Introduction to Accounting Information Systems** U 3

The design and control of accounting information systems.

Prereq: Honors standing, and 3100H; or permission of instructor.

**3601 Introduction to Information Systems** U 1½

The role of information systems in capturing and distributing organizational knowledge and enhancing management decision making, process of redesigning organizations utilizing systems analysis and design, quality assurance, and change management techniques, technical foundation of information systems, including hardware, software, telecommunications, networks, and the information architecture.

Prereq: Admission to BSBA program and Business Management specialization.

**3610 Foundations of Business Information Systems** U 3

Technical foundation in programming interactive business information systems.

Prereq: 2300 (212), CSE 2123 (214), BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 532.

**4193 Individual Studies** U 1 - 6

Individual study projects in selected areas in Accounting and Information Systems.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.

**4194 Group Studies** U 1 - 6

Group study projects in selected areas in Accounting and Information Systems.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.

**4200 Advanced Financial Accounting** U 3

Advanced topics in financial reporting; may include accounting for multi-corporate business entities, international operations, and government and not-for-profit organizations.

Prereq: 3201 (523) or 3201.02, and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 624.

**4210 Financial Statement Analysis** U 3

Methods of fundamental analysis will be examined in detail; improve ability to use financial statements as part of an overall assessment of a firm's strategy and valuation.

Prereq: 3201 (523) and BusMHR 2292 (BusAdm 499.01). Repeatable to a maximum of 12 cr hrs.

## 2 Accounting and Management Information Systems

<b>4220</b>	<b>Governmental and Non-Profit Accounting</b>	<b>U</b>	<b>3</b>
<p>Focuses on financial reporting concepts and standards for non-profit and governmental units, evaluation of performance and the analysis and interpretation of financial statements of selected non-profit and governmental organizations. Prereq: 3201 (523) and BusMHR 2291 (BusAdm 499.01).</p>			
<b>4310</b>	<b>Topics in Management Accounting</b>	<b>U</b>	<b>3</b>
<p>Advanced topics in management control, strategic interactions within the firm. Students may not repeat topics. Prereq: 3300 (525) and BusMHR 2292 (BusAdm 499.01). Repeatable to a maximum of 6 cr hrs.</p>			
<b>4410</b>	<b>Tax Accounting II</b>	<b>U</b>	<b>3</b>
<p>Intensive study of the federal income tax treatment of business corporations and partnerships, with particular attention to tax planning by these businesses and their owners. Prereq: 3400 (626) and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 636.</p>			
<b>4500</b>	<b>Auditing Principles and Procedures</b>	<b>U</b>	<b>3</b>
<p>Basic concepts and standards of auditing; audit procedures and working papers, internal and external audit reports; professional responsibilities of auditors. Prereq: 3201 (523) and BusMHR 2292 (BusAdm 499.01), or permission of instructor. Not open to students with credit for 627.</p>			
<b>4510</b>	<b>Fraud Examination</b>	<b>U</b>	<b>3</b>
<p>The course will cover all major methods employees use to commit occupational fraud involving the misappropriation of assets. Prereq: 3201 and 3600, or permission of instructor.</p>			
<b>4620</b>	<b>Analysis and Design of Management Information Systems</b>	<b>U</b>	<b>3</b>
<p>Investigation and application, through real-world projects, of concepts and tools used in the analysis and design of management information systems. Prereq: CSE 3232 (616), BusMgt 2320 (330), 2321 (331), and BusMHR 2291 (BusAdm 499.01). Not open to students with credit for 651.</p>			
<b>4650</b>	<b>Decision Support and Expert Systems</b>	<b>U</b>	<b>3</b>
<p>Study of computer-based systems designed to support decision-making within the organization. Prereq: CSE 3232 (616), BusMgt 2320 (330), and 2321 (331). Not open to students with credit for 657.</p>			
<b>4660</b>	<b>Electronic Commerce</b>	<b>U</b>	<b>3</b>
<p>Examination of technical, managerial, and strategic issues that surround the emergence of electronic commerce on the internet. Prereq: 3610 (532) or CSE 3241 (670), and BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 658.</p>			
<b>4670</b>	<b>Information Systems Planning &amp; Management</b>	<b>U</b>	<b>3</b>
<p>Planning and management of the information system function in business organizations with emphasis on the problems involved. Prereq: CSE 2123 (214), BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01); and Sr or Grad standing. Not open to students with credit for 659.</p>			
<b>4780</b>	<b>Accounting Research and Practice</b>	<b>U</b>	<b>3</b>
<p>Researching accounting concepts and standards underlying corporate and non-corporate financial statements including consideration of typical accounting problems. Prereq: 3201 and BusMHR 2292. Not open to students with credit for 628.</p>			
<b>4780H</b>	<b>Accounting Research and Practice</b>	<b>U</b>	<b>3</b>
<p>Researching accounting concepts and standards underlying corporate and non-corporate financial statements including consideration of typical accounting problems. Prereq: Permission of Honors Accounting Director. Not open to students with credit for 628H.</p>			
<b>4784</b>	<b>Tax Research Seminar</b>	<b>U</b>	<b>3</b>
<p>Case studies requiring an in-depth examination of the tax aspects of situations frequently encountered by businesses and individuals. Prereq: A grade of B- or above in 3400, or permission of instructor.</p>			
<b>4998</b>	<b>Undergraduate Research in Accounting and MIS</b>	<b>U</b>	<b>1 - 3</b>
<p>Undergraduate Research in Accounting and MIS for non-honors students. Prereq: Permission of Program Director. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.</p>			
<b>4998H</b>	<b>Research</b>	<b>U</b>	<b>1 - 4</b>
<p>Special topics research in accounting and/or management information systems; research evaluated through papers, thesis, and/or special examinations. Prereq: A grade of B or above in 3201H, or permission of Honors Accounting Director. Not open to students with credit for 783H. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is progress graded.</p>			
<b>5000</b>	<b>Accounting and Cost Analysis</b>	<b>U G</b>	<b>3</b>
<p>An introduction to accounting and cost analysis for planning, decision-making, and control. Prereq: ISE 2000 (500) and 2040 (504), or enrollment in MBLE program. Not open to students with credit for 501.</p>			

<b>5200H</b>	<b>Honors Advanced Financial Accounting</b>	<b>U G</b>	<b>3</b>
<p>Advanced topics in financial reporting including accounting for multi-corporate business entities, international operations, and other topics. Prereq: Honors standing, and a grade of B or above in 3201H; or permission of Honors Accounting Director. Not open to students with credit for 624H.</p>			
<b>5500H</b>	<b>Honors Auditing Principles and Procedures</b>	<b>U G</b>	<b>3</b>
<p>Basic concepts and standards of auditing; audit procedures and working papers, internal and external audit reports. Prereq: A grade of B or above in 3201H (520H), or permission of Honors Accounting Director. Not open to students with credit for 627H.</p>			
<b>6000</b>	<b>Management &amp; Control</b>	<b>G</b>	<b>2½</b>
<p>Fundamental role of uncertainty, risk and private information in accounting; emphasis on managerial decisions and control problems in organizations. Prereq: Enrollment in Master of Accounting Program. Not open to students with credit for 803.</p>			
<b>6001</b>	<b>Fundamentals of Accounting Data &amp; Analytics</b>	<b>G</b>	<b>2½</b>
<p>Provides an introduction to using large datasets to better understand corporate financial reporting and market behavior. Prereq: Enrollment in Master of Accounting Program.</p>			
<b>6200</b>	<b>Financial Reporting</b>	<b>G</b>	<b>2½</b>
<p>Examination of major aspects of corporate financial reporting by management under GAAP, including coverage of disclosures required for trade securities, tax aspects of mergers and acquisitions, auditing, and financial analysis. Prereq: Enrollment in Master of Accounting Program. Not open to students with credit for 7200.</p>			
<b>6201</b>	<b>Professional Research in Accounting</b>	<b>G</b>	<b>1½</b>
<p>Research and communication skills in a professional accounting context; learn to use various accounting information resources; enhance communication and teamwork skills through collaborative exercises. Prereq: Enrollment in Master of Accounting Program. Not open to students with credit for 804.</p>			
<b>6202</b>	<b>Accounting Policy &amp; Research</b>	<b>G</b>	<b>2½</b>
<p>Provides students the opportunity to develop their knowledge and appreciation of current debates surrounding the accounting profession. They will be exposed to academic research in accounting and the primary underlying methods involved. Prereq: Enrollment in Master of Accounting Program. Not open to students with credit for AcctMIS 844.</p>			
<b>7010</b>	<b>Ethical Challenges in Accounting and Business</b>	<b>G</b>	<b>1½</b>
<p>Provides students with an understanding of ethical challenges facing accounting and business professionals. Prereq: MBA 6211 (800), or enrollment in MAcc program.</p>			
<b>7020</b>	<b>Uncertainty, Diversification, and Private Information</b>	<b>G</b>	<b>1½</b>
<p>Focuses on role of uncertainty, risk aversion, and private information in decision making. The course utilizes the expected utility paradigm to study topics of portfolio diversification, CAPM, option pricing, incentive design, information cascades, and signaling theory. Prereq: Enrollment in Fisher College Grad Program.</p>			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>½ - 8</b>
<p>Individual studies in Accounting and Information Systems. Prereq: Enrollment in the AcctMIS PhD program, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.</p>			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>½ - 3</b>
<p>Group studies in Accounting and Information Systems; topics vary. Prereq: MBA 6211 (800), or enrollment in MAcc program. Repeatable to a maximum of 12 cr hrs or 4 completions.</p>			
<b>7200</b>	<b>Corporate Financial Reporting I</b>	<b>G</b>	<b>1½</b>
<p>Examination of major aspects of corporate financial reporting. Prereq: 6050 or MBA 6211. Not open to students with credit for 6200 (824).</p>			
<b>7220</b>	<b>Financial Statement Analysis</b>	<b>G</b>	<b>1½</b>
<p>Examines the role of financial statement analysis in the evaluation of the firm's financial performance and the prediction of its future economic condition. Prereq: MBA 6211 (800), or enrollment in MAcc program. Not open to students with credit for 842.</p>			
<b>7221</b>	<b>Financial Statement Analysis II</b>	<b>G</b>	<b>1½</b>
<p>Examines additional techniques to evaluate the firm's financial performance and the prediction of its future economic condition based on financial statements. Prereq: 7220, or permission of instructor. Not open to students with credit for 842.</p>			
<b>7230</b>	<b>Accounting for Mergers and Acquisitions (and other Complex Transactions)</b>	<b>G</b>	<b>1½</b>
<p>Designed for students whose careers will require an expert understanding of advanced accounting and reporting concepts regarding complex financial transactions. Prereq: Not open to students with credit for 841.</p>			
<b>7240</b>	<b>International Financial Reporting Standards</b>	<b>G</b>	<b>1½</b>
<p>Students will learn the guiding principles behind international reporting standards. They will also learn areas of commonalities and substantial divergence between U.S. GAAP and IFRS. Prereq: 6200 or 7200. Not open to students with credit for 849.</p>			

## Accounting and Management Information Systems 3

<b>7250</b>	<b>Governmental and Non-Profit Accounting</b>	<b>G</b>	<b>1½</b>
Focus is on financial reporting concepts and standards for non-profit and governmental units, evaluation of performance and the analysis and interpretation of financial statements of selected non-profit and governmental organizations. Prereq: MBA 6211, or enrollment in MAcc program. Not open to students with credit for 4510.			
<b>7310</b>	<b>Managerial Accounting for Decision Making</b>	<b>G</b>	<b>1½</b>
Cost systems with emphasis on the appropriate application of system outputs to management decisions. Prereq: MBA 6211 (800), or enrollment in MAcc program. Not open to students with credit for 823.			
<b>7400</b>	<b>Tax Planning for Managerial Decision Making</b>	<b>G</b>	<b>1½</b>
Examination of the impact of taxes on several important business decisions; recognition of tax problems and planning opportunities. Prereq: MBA 6211 (800), or enrollment in Master of Accounting Program, or permission of instructor. Not open to students with credit for 826.			
<b>7410</b>	<b>Tax Accounting II</b>	<b>G</b>	<b>1½</b>
Intensive study of the federal income tax treatment of business corporations and partnerships, with particular attention to tax planning by these businesses and their owners. Prereq: 7400 (826), or enrollment in Master of Accounting Program, or permission of instructor. Not open to students with credit for 846.			
<b>7420</b>	<b>Tax Accounting III</b>	<b>G</b>	<b>1½</b>
Intensive study of the federal income tax treatment of business entities and wealthy individuals, with particular attention to tax planning by these businesses and their owners. Prereq: MBA 6211 (800), or enrollment in Master of Accounting Program, or permission of instructor. Not open to students with credit for 866. Repeatable to a maximum of 12 cr hrs.			
<b>7430</b>	<b>Taxes and Business Strategy</b>	<b>G</b>	<b>1½</b>
Identify, understand and evaluate tax planning opportunities where a conceptual framework of how tax rules affect business decisions and those aggregated business decision impact the economy. Prereq: MBA 6211 (800), or enrollment in Masters of Accounting Program; or permission of instructor.			
<b>7500</b>	<b>Auditing Principles and Procedures</b>	<b>G</b>	<b>1½</b>
Basic theory and practice of auditing. Prereq: Enrollment in MAcc program.			
<b>7510</b>	<b>Assurance Services and Information Quality</b>	<b>G</b>	<b>1½</b>
Examination of the role of assurance services in enhancing the quality of information used for financial decision making, focusing on the perspective of the decision maker. Prereq: 4500 (627), 5500H (627H), or 7500, or equiv, and enrollment in the MAcc program. Not open to students with credit for 822.			
<b>7520</b>	<b>Fraud Examination: Misappropriation of Assets</b>	<b>G</b>	<b>1½</b>
Students will learn the major methods used by employees to commit fraud, factors that motivate individuals to commit fraud, misappropriation of assets, study of assets, and fraudulent disbursements, with emphasis on mechanisms to prevent and detect such frauds. Prereq: MBA 6211 (800), or enrollment in MAcc program. Not open to students with credit for 861.			
<b>7530</b>	<b>Fraud Examination: Fraudulent Financial Reporting</b>	<b>G</b>	<b>1½</b>
Students will learn to detect fraud by studying fraudulent financial reporting (intentional misstatements or omissions in financial statements), with emphasis on detection techniques. Prereq: MBA 6211 (800), or enrollment in Master of Accounting Program, or permission of instructor. Not open to students with credit for 862.			
<b>7620</b>	<b>Management of Corporate Data Resources</b>	<b>G</b>	<b>1½</b>
Examines modern database systems with an emphasis on planning, administrative, and implementation issues. Prereq: MBA 6211 (800), or enrollment in MAcc program. Not open to students with credit for 837.			
<b>7640</b>	<b>Data Mining for Business Intelligence</b>	<b>G</b>	<b>1½</b>
A theoretical and practical understanding of core data mining concepts and techniques and hands-on experience in applying these techniques to practical real-world business problems. Prereq: MBA 6211 (800), or enrollment in MAcc program.			
<b>7650</b>	<b>Accounting Information Systems: Processes, Technology, and Analytics</b>	<b>G</b>	<b>3</b>
This course covers the design and use of accounting information systems. The course emphasizes business processes and internal controls, with a focus on emerging technologies and the use of analytics in their evaluation. Prereq: MBA 6211 (800), or enrollment in MAcc program, or permission of instructor.			
<b>7660</b>	<b>Accounting &amp; Data Analytics Internship Experience</b>	<b>G</b>	<b>1½</b>
An internship experience affords the student the opportunity to apply in the workplace the knowledge and skills s/he acquired in the classroom. In this course, students will examine the role of data analytics in the daily operations of an organization. Students will gain a better understanding of organizational culture, professional expectations, and his/her career options in the workplace. Prereq: Enrollment in MAcc program.			

<b>7716</b>	<b>Accounting and Financial Analysis in Health Sciences</b>	<b>G</b>	<b>1½</b>
Examines how managers use accounting and financial reporting information in decision making and performance evaluation. Course focuses on fundamental techniques for financial analysis such as time value money, risk and return, and capital budgeting. Prereq: BusMgt 7701, BusFin 7702, and BusMHR 7703; and enrollment in the Graduate Business Minor in Health Sciences.			
<b>7784</b>	<b>Tax Research</b>	<b>G</b>	<b>1½</b>
Case studies requiring an in-depth examination of the tax aspects of situations frequently encountered by businesses and individuals. Prereq: 7410, or enrollment in MAcc program. Not open to students with credit for 856.			
<b>7800</b>	<b>Advanced Topics in Accounting and MIS for EMBA</b>	<b>G</b>	<b>1 - 3</b>
Advanced Topics in Accounting and MIS for students in the Executive MBA Program. Prereq: Enrollment in EMBA Program. Repeatable to a maximum of 15 cr hrs or 7 completions.			
<b>7810</b>	<b>Advanced Topics in Accounting and MIS</b>	<b>G</b>	<b>1½ - 3</b>
Advanced Topics in Accounting and MIS for students in the MAcc Program. Prereq: Enrollment in MAcc program. Repeatable to a maximum of 15 cr hrs or 7 completions.			
<b>8780</b>	<b>Doctoral Seminar in Accounting &amp; MIS</b>	<b>G</b>	<b>3</b>
Required seminar in Accounting and MIS for first year doctoral students. Prereq: Enrollment in AcctMIS PhD program.			
<b>8782</b>	<b>Doctoral Seminar in Financial Accounting</b>	<b>G</b>	<b>3</b>
Required doctoral seminar in Financial Accounting. Prereq: Enrollment in AcctMIS PhD program.			
<b>8783</b>	<b>Doctoral Seminar in Managerial Accounting</b>	<b>G</b>	<b>3</b>
Required doctoral seminar in Managerial Accounting. Prereq: Enrollment in AcctMIS PhD program.			
<b>8786</b>	<b>Doctoral Seminar in MIS Research</b>	<b>G</b>	<b>3</b>
Required doctoral seminar in MIS Research. Prereq: Enrollment in AcctMIS PhD program.			
<b>8890</b>	<b>Doctoral Seminar in Accounting Topics</b>	<b>G</b>	<b>3</b>
Doctoral seminar in Selected Accounting Topics. Prereq: Enrollment in AcctMIS PhD program. Repeatable to a maximum of 12 cr hrs.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 9</b>
Doctoral dissertation research. Prereq: Enrollment in AcctMIS PhD program. Repeatable to a maximum of 24 cr hrs or 9 completions. This course is progress graded (S/U).			

### Advanced Computing Center for the Arts and Design

<b>3350</b>	<b>The History of Animation</b>	<b>U</b>	<b>3</b>
An overview of the history and theory of animation including origin of animation forms, Hollywood Studio animation, a sample of World Animation and contemporary animation. Prereq: Not open to students with credit for ArtsCol 350.			
<b>4101</b>	<b>Performance and Installation Technology</b>	<b>U</b>	<b>3</b>
An overview of technologies useful for creating interactive installations and performance systems, using video projection, 3D graphics, environmental sensors and visual programming. Prereq: Permission of Instructor.			
<b>5001</b>	<b>Motion Studies through Hand-Drawn Animation</b>	<b>U G</b>	<b>3</b>
The principles of animation as demonstrated through hand-drawn animation. The work produced serves as a tool for comprehending the underlying process of any animation technique. Prereq: Not open to students with credit for ArtsCol 683.			
<b>5002</b>	<b>3D Computer Animation: Form, Light and Motion I</b>	<b>U G</b>	<b>3</b>
Overview of 3D computer animation components and stages of production. Prereq: 5001 for students enrolled in the MIP (Moving Image Production) program.			
<b>5003</b>	<b>3D Computer Animation: Form, Light and Motion II</b>	<b>U G</b>	<b>3</b>
Further exploration of 3D computer animation and stages of production. Prereq: 5002, or permission of instructor.			
<b>5100</b>	<b>Concept Development for Time-Based Media</b>	<b>U G</b>	<b>3</b>
Methods for developing concepts for time-based media through the cultivation of ideas and problem-solving strategies. Storyboarding, composition, editing and sound principles will be explored. Prereq: Not open to students with credit for ArtsCol 730.			
<b>5102</b>	<b>Programming Concepts and Applications for Artists and Designers</b>	<b>U G</b>	<b>3</b>
Fundamental programming concepts useful to artists and designers for creating algorithmic - based graphics and graphics tools. Prereq: Not open to students with credit for ArtsCol 756.			
<b>5140</b>	<b>Interactive Arts Media: Web</b>	<b>U G</b>	<b>3</b>
Introduction to the theory and practice of the design of interactive media for the web. Prereq: Not open to students with credit for ArtsCol 740.			

## 4 Advanced Computing Center for the Arts and Design

<b>5141</b>	<b>Interactive Arts Media: UI/UX</b>	<b>U G</b>	<b>3</b>
Practice in methods for designing and crafting user experiences (UX) and user interfaces (UI) for web applications.			
<b>5150</b>	<b>Emerging Trends in Data Visualization</b>	<b>U G</b>	<b>3</b>
This course enables students to explore new and emerging visualization approaches, topics and trends in visualization research and their applications. Students will research, write about, experience, propose, and prototype trends and possibilities for visualization.			
<b>5191</b>	<b>ACCAD Internship</b>	<b>U G</b>	<b>½ - 3</b>
A collaborative internship assignment conducted under the supervision of a faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Independent Study</b>	<b>U G</b>	<b>½ - 3</b>
Independent study. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>5194.01</b>	<b>Group Studies in Digital Animation and Interactive Media</b>	<b>U G</b>	<b>½ - 3</b>
Group study on various topics related to digital animation and interactive media. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5301</b>	<b>Devising Experiential Media Systems</b>	<b>U G</b>	<b>3</b>
This course focuses on the creation of interactive and responsive spaces through the design of experiential media systems within the context of their underlying history, methodology, technology, and theory. Using a multidisciplinary and collaborative approach, students create hybrid digital-physical experiences which investigate the application of the technology used in experiential media design.			
<b>5500</b>	<b>Integrated Tech Lab</b>	<b>U G</b>	<b>½ - 3</b>
Technology exploration using ACCAD's specialized graphics laboratories. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>6002</b>	<b>Computer Game Art and Design I</b>	<b>G</b>	<b>3</b>
Introduction to concepts for design and prototyping of games for entertainment, learning and social good. Prereq: Sr or Grad standing, and permission of instructor. Not open to students with credit for ArtsCol 733.			
<b>6003</b>	<b>Computer Game Art and Design II</b>	<b>G</b>	<b>3</b>
Advanced topics for design and production of both fun and serious games including networked multi-player and mobile devices. Prereq: Sr or Grad standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>6650</b>	<b>The History of Animation</b>	<b>G</b>	<b>3</b>
Overview of the history and theory of animation, including the origin of animation forms and Hollywood Studio animation, with a sample of World and contemporary animations. Prereq: Grad standing. Not open to students with credit for ArtsCol 650.			
<b>6651</b>	<b>Digital and Physical Lighting</b>	<b>G</b>	<b>4</b>
Introduction to the principles and concepts of lighting as used in theatre and computer graphics. Working in collaborative teams, students develop and execute digital and analog lighting schemes. Prereq: Grad standing, or permission of instructor. Not open to students with credit for ArtsCol 754 or Theatre 6651 (754). Cross-listed in Theatre.			
<b>7001</b>	<b>Virtual Modeling</b>	<b>G</b>	<b>3</b>
Design and modeling principles of 3D objects, environments and characters for animation, games and visualization. Prereq: Grad standing, or permission of instructor. Not open to students with credit for ArtsCol 751.			
<b>7101</b>	<b>Performance and Installation Technology</b>	<b>G</b>	<b>3</b>
An overview of technologies useful for creating interactive installations and performance systems, using video projection, 3D graphics, environmental sensors and visual programming. Prereq: Grad standing, or permission of instructor. Not open to students with credit for ArtsCol 758.			
<b>7102</b>	<b>Motion Capture Production and Experimentation</b>	<b>G</b>	<b>3</b>
Traditional motion capture pipelines and exploration of possibilities for experimental approaches and applications of the technology. Prereq: Grad standing, or permission of instructor. Not open to students with credit for ArtsCol 760.			
<b>7103</b>	<b>Designing Immersive Virtual Environments</b>	<b>G</b>	<b>3</b>
Creative and technical concepts for the development of simulations, installations, augmented reality and responsive spaces using 3D computer graphics with gesture-based and alternative input systems combined with immersive display methods. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>7193</b>	<b>Independent Study</b>	<b>G</b>	<b>½ - 3</b>
Independent Study. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			

<b>7504</b>	<b>Animation Production</b>	<b>G</b>	<b>1 - 6</b>
An advanced studio course designed for students who are well versed in animation concepts and technical basics. The course challenges students to embark on collaborative animation projects that are currently in-house at ACCAD. Prereq: 7001, 7002, 7003, 7004, or 7005, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7893</b>	<b>Collaborative Interdisciplinary Research Studio Experience</b>	<b>G</b>	<b>1 - 3</b>
Creative research by teams integrating information, data, techniques, tools, perspectives, concepts, &/or theories from two or more bodies of specialized knowledge to advance fundamental understanding or solve problems whose solutions are evolving. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.			

## Aerospace Engineering

<b>2200</b>	<b>Introduction to Aerospace Engineering I</b>	<b>U</b>	<b>4</b>
An introduction to fundamental concepts leading to aircraft design, with an emphasis on aerodynamics and aircraft performance. Prereq: Physics 1250 or 1260 (131); and Math 1152 (152), 1161 (161), 1172 (154), or 1181H, or a grade of C- or above in Math 1544. Prereq or concur: Math 2173 (254), 2153 (153), or 2162 (263). Not open to students with credit for 200.			
<b>2201</b>	<b>Introduction to Aerospace Engineering II</b>	<b>U</b>	<b>4</b>
An introduction to fundamental concepts leading to aircraft and spacecraft design, with an emphasis on stability and control, propulsion, space launch/reentry, and orbital mechanics. Prereq: 2200 (200). Not open to students with credit for 201.			
<b>2405</b>	<b>Thermodynamics</b>	<b>U</b>	<b>3</b>
Aerospace engineering thermodynamics: Introduction to the concepts of energy and entropy, the First and Second Law analysis of systems and control volumes, and the analysis of power and refrigeration cycles. Prereq: 2200 (200), and AeroEng-BS student (No AAE pre-majors can enroll in this class). Not open to students with credit for 405.			
<b>3520</b>	<b>Flight Vehicle Dynamics</b>	<b>U</b>	<b>3</b>
Introduction to mathematical modeling of dynamics (equations of motion) for rigid bodies with specific application towards aircraft and spacecraft. Prereq: 2201 (201) and MechEng 2030 (430), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 520.			
<b>3521</b>	<b>Fundamentals of Flight Vehicle Control</b>	<b>U</b>	<b>3</b>
Linear dynamic systems analysis using Transfer function (Laplace Transformation based) methods and State Space (matrix theory based) methods with emphasis on aircraft and spacecraft models. Prereq: 3520 (520) and ECE 2300 (300 and 309), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 521.			
<b>3542</b>	<b>Flight Vehicle Structures I</b>	<b>U</b>	<b>3</b>
Introduction to aerospace structures: Basic structural components; fundamental elements of linear elastic boundary value problems; composites; bending, torsion and shear of thin-walled sections; laboratory demonstrations. Prereq: 2201 (201) and MechEng 2030 (430) and 2040, or AeroEng 2201 (201) and MechEng 2010 and 2020 and 2030; and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 542.			
<b>3543</b>	<b>Flight Vehicle Structures II</b>	<b>U</b>	<b>3</b>
Energy Based Analysis: principles of virtual work and minimum potential energy; rayleigh-ritz & finite element methods; structural stability; thermo-elasticity; structural dynamics; laboratory demonstrations. Prereq: 3542 (342), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 543.			
<b>3560</b>	<b>Fundamentals of Aerodynamics</b>	<b>U</b>	<b>3</b>
Fundamentals of viscous and inviscid flow encountered in aircraft aerodynamics. Prereq: 2201 (201) and 2405 (405); and Math 2174, or 2568 (568) and 2415 (415); and enrollment as AeroEng-BS student. Not open to students with credit for 560 and 570, or AeroEng pre-majors.			
<b>3570</b>	<b>One Dimensional Gas Dynamics</b>	<b>U</b>	<b>3</b>
Continuation of viscous flows and boundary layers. One-dimensional gas dynamics including shocks, waves, supersonic, and transonic flow. Prereq: 3560 (560 and 570), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 530.			
<b>3580</b>	<b>Heat Transfer</b>	<b>U</b>	<b>3</b>
Fundamentals of conduction, convection, and radiation. Prereq: 3560 (560 and 570), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 570.			
<b>3581</b>	<b>Numerical Methods in Aerospace Engineering</b>	<b>U</b>	<b>3</b>
Fundamentals of mathematical and numerical modeling techniques and their applications in solving engineering problems. Prereq: Math 2174, or 2568 (568) and 2415 (415); and enrollment as AeroEng-BS student. Not open to students with credit for 581, or AeroEng pre-majors.			

## Aerospace Engineering 5

<b>4193</b>	<b>Individual Studies in Aerospace Engineering</b>	<b>U</b>	<b>1 - 7</b>
Individual studies project for undergraduates. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 4 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Aerospace Engineering</b>	<b>U</b>	<b>1 - 3</b>
Group studies course for undergraduates. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 4 completions.			
<b>4510</b>	<b>Experimental Projects I</b>	<b>U</b>	<b>2</b>
Conceive, plan and design an experiment with a group of students. Emphasis on planning and experiment preparation. Prereq: 3543 (543) and 3570 (530 and 570), and Sr standing, and enrollment as AeroEng-BS student (No pre-majors can enroll in this class).			
<b>4511</b>	<b>Experimental Projects II</b>	<b>U</b>	<b>2</b>
Execute and report on experiment formulated in Projects I. Emphasis on execution and reporting. Prereq: 4510, and enrollment as AeroEng-BS student (No pre-majors can enroll in this class).			
<b>4515</b>	<b>Design of Atmospheric Flight Vehicles I</b>	<b>U</b>	<b>3</b>
Conceptual and preliminary design, methodology, case studies, introduction of design software, group planning for subsequent design effort: design of atmospheric flight vehicles and components. Prereq: 3543 (543) and 3570 (530 and 570) and 3521 (521) and 3580 (580), and Sr standing, and enrollment as AeroEng-BS student (No AAE pre-majors can enroll in this class). Prereq or concur: 4550 (550). Not open to students with credit for 515.01 or 516.01.			
<b>4516</b>	<b>Design of Atmospheric Flight Vehicles II</b>	<b>U</b>	<b>3</b>
Continuation of 4515. Preliminary and detailed design of aerospace vehicle components: design of a vehicle for atmospheric flight. Prereq: 4515 (515 and 516), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class). Not open to students with credit for 516.01 or 517.01.			
<b>4517</b>	<b>Design of Space Vehicles and Systems I</b>	<b>U</b>	<b>3</b>
Feasibility study of a space mission, elements of mission design and design methodologies of spacecraft subsystems, and preliminary sizing. Prereq: 3521 and 3543 and 3570 and 3580, and Sr standing, and enrollment as AeroEng-BS student (No pre-majors can enroll in this course). Prereq or concur: 4550.			
<b>4518</b>	<b>Design of Space Vehicles and Systems II</b>	<b>U</b>	<b>3</b>
Continuation of 4517: Preliminary and detailed design of space vehicle components. Design of a space vehicle/system, and mission scenarios simulation via computer software. Prereq: 4517, and enrollment as AeroEng-BS student (No pre-majors can enroll in this course).			
<b>4550</b>	<b>Principles of Flight Vehicle Propulsion</b>	<b>U</b>	<b>3</b>
Fundamentals of aerospace propulsion, engine cycles and analysis of various air-breathing and rocket engines. Prereq: 3570. Not open to students with credit for 550.			
<b>4998</b>	<b>Aerospace Engineering Research</b>	<b>U</b>	<b>1 - 3</b>
Aerospace Engineering research. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>4999</b>	<b>Aerospace Engineering Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Aerospace Engineering research for thesis. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 5 completions.			
<b>4999H</b>	<b>Aerospace Engineering Honors Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Aerospace Engineering honors research for thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 or hrs or 5 completions. This course is graded S/U.			
<b>5610</b>	<b>Helicopter Aerodynamics</b>	<b>U G</b>	<b>3</b>
Basic treatment of helicopter aerodynamics, performance, and design. Prereq: 3570 (530 and 570).			
<b>5612</b>	<b>Aircraft Performance and Flight Test Engineering</b>	<b>U G</b>	<b>3</b>
Determination of the performance, stability, controllability, and handling qualities of general aviation aircraft through analysis and flight tests. Prereq: 3520 (520) and 3570 (530 and 570). Not open to students with credit for 612.			
<b>5615</b>	<b>Introduction to Computational Aerodynamics</b>	<b>U G</b>	<b>3</b>
Introduction to computational methods used in aerodynamics flow problems. Prereq: 3570 and 3581, and AeroEng major. Not open to AeroEng pre-major students.			
<b>5616</b>	<b>Advanced Flight Vehicle Design</b>	<b>U G</b>	<b>3</b>
The course introduces advanced flight vehicle design techniques applied during the conceptual design phase. The optimum design process and problem formulation is introduced, with an in-depth focus on multivariate graphical optimization techniques for aircraft. We will conduct optimal design based on first principles, and apply best practices to multidisciplinary flight vehicle design. Prereq or concur: 4550, and 4515 or 4517; or Grad standing in AeroEng; or permission of instructor.			

<b>5620</b>	<b>Stability and Control of Flight Vehicles</b>	<b>U G</b>	<b>3</b>
Analysis and design of aircraft, helicopter and missile flight control systems and the associated guidance and navigation systems. Prereq: 3521 (521). Not open to students with credit for 620 or 621.			
<b>5621</b>	<b>Guidance, Navigation, and Control of Aerospace Vehicles</b>	<b>U G</b>	<b>3</b>
Spacecraft (satellite) control systems analysis and design. Prereq: 3521 (521). Not open to students with credit for 620 or 621.			
<b>5626</b>	<b>Orbital Mechanics for Engineers</b>	<b>U G</b>	<b>3</b>
Introduction to orbital mechanics with orbit determination techniques, orbital maneuvers and lunar and interplanetary trajectories. Prereq: 3520 (520) and MechEng 2030 (430). Not open to students with credit for 645 or 745.			
<b>5751</b>	<b>Advanced Air-Breathing Propulsion</b>	<b>U G</b>	<b>3</b>
Fundamental and advanced concepts of gas turbine operation. Prereq: 4550 (550). Not open to students with credit for 751.			
<b>5752</b>	<b>Advanced Space Propulsion</b>	<b>U G</b>	<b>3</b>
Analysis of different propulsion techniques for access to space and inter-planetary flight: liquid, solid, hybrid, nuclear and electric. Emphasizes fundamentals based on physics and mathematics. Prereq: 4550 (550), or permission of instructor. Not open to students with credit for 752.			
<b>5775</b>	<b>Hypersonic Flow</b>	<b>U G</b>	<b>3</b>
Introduction to hypersonic inviscid and viscous flows, Newtonian theory, high-temperature effects and heat transfer. Prereq: 3570 (530 and 570) and 4550 (550). Not open to students with credit for 775.			
<b>6193</b>	<b>Individual Studies in Aerospace Engineering</b>	<b>G</b>	<b>1 - 7</b>
Individual studies project. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies in Aerospace Engineering</b>	<b>G</b>	<b>1 - 3</b>
Group studies course. Prereq: Permission of instructor. Repeatable to a maximum of 8 or hrs or 4 completions.			
<b>6645</b>	<b>Introduction to Structural Dynamics and Aeroelasticity of Aerospace Vehicles</b>	<b>G</b>	<b>4</b>
Fundamental Concepts of Structural Dynamics, Unsteady Aerodynamics, and Aeroelasticity of Aerospace Vehicles. Prereq: Grad standing, or permission of instructor.			
<b>6771</b>	<b>Viscous Fluid Flow: Laminar and Transitional</b>	<b>G</b>	<b>3</b>
Focus on laminar and transitional flows, beginning with classic analytical solutions to the Navier-Stokes equations and addressing issues of boundary layer stability and compressibility effects. Prereq: 3560 and 3570.			
<b>6860</b>	<b>Experimental Fluid Mechanics</b>	<b>G</b>	<b>3</b>
Introduction to experiment planning, data acquisition and analysis, and advanced measurement techniques commonly employed in fluid dynamics research. Prereq: Grad standing in Mechanical or Aerospace Engineering, or permission of instructor. Not open to students with credit for 860.			
<b>7774</b>	<b>Aeroacoustics</b>	<b>G</b>	<b>3</b>
Fundamental concepts of classical acoustics; physical mechanisms associated with aerodynamic noise generation; computational aeroacoustic methods. Prereq: 5615 (615) or equiv.			
<b>7844</b>	<b>Optimal Design of Aerospace Structures</b>	<b>G</b>	<b>3</b>
Optimization applied to aircraft and spacecraft structures. Prereq: Grad standing in Mechanical or Aerospace Engineering, or permission of instructor. Not open to students with credit for 844 or MechEng 7761 (761). Cross-listed in MechEng 7761.			
<b>7862</b>	<b>Internal Flows in Turbomachinery</b>	<b>G</b>	<b>3</b>
Detailed study of swirling, rotating, compressible, and unsteady internal flows found in turbomachinery. Prereq: 3560 (560) and 5751 (751), or permission of instructor. Not open to students with credit for 862.			
<b>7875</b>	<b>Introduction to Turbulence</b>	<b>G</b>	<b>3</b>
Introduction to turbulence in fluid mechanics with emphasis on understanding the physical mechanisms involved. Prereq: Grad standing in Mechanical or Aerospace Engineering, or permission of instructor. Not open to students with credit for 875. Cross-listed in MechEng 7513.			
<b>8193</b>	<b>Individual Studies in Aerospace Engineering</b>	<b>G</b>	<b>1 - 7</b>
Topics selected to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			



## 6 Aerospace Engineering

<b>8194</b>	<b>Group Studies Aerospace Engineering</b>	<b>G</b>	<b>1 - 3</b>
Topics selected to give advanced students an opportunity to pursue special studies as a group not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>8802</b>	<b>Advanced Mathematical Methods in Engineering</b>	<b>G</b>	<b>3</b>
Fourier series, complex differentiation and integration and transform and Green's function methods for solution of problems arising in heat transfer, vibrations, fluid mechanics; asymptotic analysis and singular perturbations. Prereq: Grad standing in Mechanical, Aerospace, or Nuclear Engineering; or permission of instructor. Cross-listed in MechEng 8518.			
<b>8820</b>	<b>Robust Multivariable Control with Applications</b>	<b>G</b>	<b>3</b>
Advanced concepts for robust control of uncertain dynamic systems with applications. Prereq: 5620 (620) or 5621 (621), or equiv.			
<b>8873</b>	<b>Advanced Computational Fluid Dynamics</b>	<b>G</b>	<b>3</b>
Fundamentals of most types of numerical approaches employed to solve fluid dynamics and heat transfer problems. Prereq: 5615 (615) or MechEng 6507 (707), or equiv. Not open to students with credit for 873.			
<b>8890</b>	<b>Aerospace Engineering Graduate Seminar</b>	<b>G</b>	<b>1</b>
Lecture and discussion of current topics related to Aerospace Engineering presented by graduate students, staff and guest speakers. Course does not count toward course work required for MS or PhD degrees. Prereq: Grad standing in AeroEng, MechEng or NuclEn. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8998</b>	<b>Aerospace Engineering Research for MS Thesis</b>	<b>G</b>	<b>1 - 15</b>
Aerospace engineering research for thesis. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Aerospace Engineering Research for Dissertation</b>	<b>G</b>	<b>1 - 16</b>
Aerospace Engineering research for PhD. Repeatable. This course is graded S/U.			

### African American and African Studies

<b>1101</b>	<b>Introduction to African American and African Studies</b>	<b>U</b>	<b>3</b>
Introduction to the scholarly study of the Africana experience, focusing on patterns of resistance, adaptation, diversity, and transnational connections. Prereq: English 1110. GE soc sci indivs and groups course.			
<b>1121</b>	<b>African Civilizations to 1870</b>	<b>U</b>	<b>3</b>
Exploration of the political, social, and economic history of precolonial African civilizations, using a variety of interdisciplinary approaches and materials. Prereq: English 1110. GE historical study and diversity global studies course.			
<b>1122</b>	<b>African Civilizations, 1870 to the Present</b>	<b>U</b>	<b>3</b>
Exploration of the political, social, and economic history of colonial and independent African countries, using a variety of interdisciplinary approaches and materials. Prereq: English 1110. GE historical study and diversity global studies course.			
<b>2080</b>	<b>African American History to 1877</b>	<b>U</b>	<b>3</b>
The study of the African American experience in America from arrival through the era of Reconstruction, focusing on slavery, resistance movements, and African American culture. Prereq or concur: English 1110.xx. Not open to students with credit for 323.01 or History 2080 (323.01). GE historical study course. Cross-listed in History.			
<b>2081</b>	<b>African American History from 1877</b>	<b>U</b>	<b>3</b>
The study of the African American experience in the United States from the era of Reconstruction through the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 323.02 or History 2081 (323.02). GE historical study course. Cross-listed in History.			
<b>2101</b>	<b>Introduction to African Art and Archaeology</b>	<b>U</b>	<b>3</b>
The Art and Archaeology of Africa with emphasis on the historic cultures of Rock Art (8,000 B.C.), Egypt (3,000 B.C.), Nok (900 B.C.), Igbo-Ukwu (695 A.D.), Ife (1200 A.D.), and Benin (1400-1900 A.D.). Prereq: Not open to students with credit for HistArt 2101 (216). GE VPA course and diversity global studies course. Cross-listed in HistArt.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Groups of students are given an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions.			
<b>2201</b>	<b>Major Readings in African American and African Studies</b>	<b>U</b>	<b>3</b>
An introduction to major authors and texts contributing to the discourses that have shaped and defined African American and African Studies from its inception to the present. Prereq: English 1110 (110). Not open to students with credit for 200 or 201. GE diversity soc div in the US course.			
<b>2218</b>	<b>Black Urban Experience</b>	<b>U</b>	<b>3</b>
Examination of contemporary black urban experience focused on the impact of persistent residential segregation, increasing class polarization, and the global force of hip hop culture. GE soc sci indivs and groups course.			

<b>2251</b>	<b>Introduction to African Literature</b>	<b>U</b>	<b>3</b>
An assessment of the oral prose tradition and written prose of African literature; specific emphasis placed on student reading from primary sources. GE lit and diversity global studies course.			
<b>2253</b>	<b>Introduction to Caribbean Literature</b>	<b>U</b>	<b>3</b>
An introduction to Caribbean literature with a focus on prose, poetry, and drama. GE lit and diversity global studies course.			
<b>2270</b>	<b>Introduction to Black Popular Culture</b>	<b>U</b>	<b>3</b>
A critical analysis of the commodity production and consumption of black popular culture products, such as fashion, film, urban fiction, music, vernacular expression, television and advertising. GE VPA and diversity soc div in the US course.			
<b>2275</b>	<b>Blackness and the Politics of Sports</b>	<b>U</b>	<b>3</b>
This interdisciplinary course considers the role of Black athletes in society and culture, the racial politics involved, and the global implications of race on courts, playing fields, tracks, and other athletic arenas.			
<b>2281</b>	<b>Introduction to African-American Literature</b>	<b>U</b>	<b>3</b>
A study of representative literary works by African-American writers from 1760 to the present. Prereq: English 1110 (110), or equiv. Not open to students with credit for 281 or English 2281 (281). GE lit and diversity soc div in the US course. Cross-listed in English.			
<b>2285</b>	<b>Afropop: Popular Music and Culture in Contemporary Africa</b>	<b>U</b>	<b>3</b>
This course focuses on the rich variety, aesthetic beauty, and political significance of popular music in modern African cities. By closely attending to the genres, forms, styles, and social life of African popular music, students will encounter the dynamic soundscape of popular culture in Africa today. GE cultures and ideas course and diversity global studies course.			
<b>2288</b>	<b>Bebop to Doowop to Hip-hop: The Rhythm and Blues Tradition</b>	<b>U</b>	<b>3</b>
Examines the aesthetic and historical evolution of rhythm and blues: black music tradition including bebop, rock and roll, and hip-hop, redefining American popular culture post-WWII. Prereq: Not open to students with credit for 288 or Music 2288 (288). GE VPA and diversity soc div in the US course. Cross-listed in Music.			
<b>2300</b>	<b>Issues in the Contemporary Black World</b>	<b>U</b>	<b>3</b>
This interdisciplinary course examines contemporary issues affecting people of African descent on the continent and throughout its Diaspora. The course will call upon students to consider how race, ethnicity, national origin, gender, sexuality, and religion affect African-descended people in their daily lives, in cultural productions, and in relation to state power. GE diversity global studies course.			
<b>2327</b>	<b>Introduction to African Politics</b>	<b>U</b>	<b>3</b>
Examination of dynamics of nation-building in African countries in transition from colonial dependencies to modern nation-states.			
<b>2367.01</b>	<b>African-American Voices in U. S. Literature</b>	<b>U</b>	<b>3</b>
Discussion, analysis, and writing about issues presented through the diverse voices of African American literature. Prereq: English 1110 (110). Not open to students with credit for 367.02. GE writing and comm: level 2 and lit and diversity soc div in the US course.			
<b>2367.02</b>	<b>Debates in African American Studies</b>	<b>U</b>	<b>3</b>
This writing-intensive course will assist students in honing their rhetorical argumentation skills through the examination of debates in African American Studies from the arrival of Africans in the Americas through the current moment. Prereq: English 1110.01 (101.01), and Soph standing. GE writing and comm course: level 2.			
<b>2367.04</b>	<b>Black Women Writers: Text and Context</b>	<b>U</b>	<b>3</b>
Writing and analysis of black women's literary representations of issues in United States social history. Prereq: English 1110, and Soph standing. Not open to students with credit for WGSSt 2367.04. GE writing and comm: level 2 and lit and diversity soc div in the US course. Cross-listed in WGSSt.			
<b>2367.07S</b>	<b>Literacy Narratives of Black Columbus</b>	<b>U</b>	<b>3</b>
This service-learning course focuses on collecting and preserving literacy narratives of Columbus-area Black communities. Through engagement with community partners, students refine skills in research, analysis, and composition; students synthesize information, create arguments about discursive/visual/cultural artifacts, and reflect on the literacy and life-history narratives of Black Columbus. Prereq: English 1110, and Soph standing. Not open to students with credit for English 2367.07S. GE writing and comm: level 2 and diversity soc div in the US course. Cross-listed in English.			
<b>3080</b>	<b>Slavery in the United States</b>	<b>U</b>	<b>3</b>
The African American experience in slavery, focusing on the rise of the slave trade, slavery in the colonial and antebellum eras, the Civil War, and abolition. Prereq or concur: English 1110.xx; or permission of instructor. Not open to students with credit for History 3080. GE historical study course. Cross-listed in History.			

## African American and African Studies 7

<b>3083</b>	<b>Civil Rights and Black Power Movements</b>	<b>U</b>	<b>3</b>
Examines the origins, evolution, and outcomes of the African American freedom struggle, focusing on the Civil Rights and Black Power movements. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for History 3083. GE historical study and diversity soc div in the US course. Cross-listed in History.			
<b>3086</b>	<b>Black Women in Slavery and Freedom</b>	<b>U</b>	<b>3</b>
Traces the experiences and struggles of African American women from slavery through the Civil Rights/Black Power era. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for History 3086. GE historical study and diversity soc div in the US course. Cross-listed in History.			
<b>3089</b>	<b>Studies in African American History</b>	<b>U</b>	<b>3</b>
Selected topics in African American history from the origins of slavery to the present. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for History 3089. Repeatable to a maximum of 12 cr hrs. GE historical study course. Cross-listed in History.			
<b>3230</b>	<b>Black Women: Culture and Politics</b>	<b>U</b>	<b>3</b>
Examination of the social, cultural, political, economic, and historical forces, dynamics, and processes affecting women throughout the Africana world. Prereq: Not open to students with credit for 230. GE diversity soc div in the US course.			
<b>3260</b>	<b>Global Black Cultural Movements</b>	<b>U</b>	<b>3</b>
This course focuses on hemispheric studies in the Americas, examining black cultural movements emerging after emancipation through the present. It considers the ways people of African descent in the Americas have used cultural productions—literature, poetry, film, music, visual art, and performance—to construct identities; agitate for equality; and understand aesthetics as political and beautiful. GE diversity global studies course.			
<b>3304</b>	<b>History of Islam in Africa</b>	<b>U</b>	<b>3</b>
Africa from the emergence of Islam in the 600s to the Present. African contributions to Islam and the impact of Islam on African societies. Sometimes this course is offered in a distance-only format. Prereq: or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 3304. GE historical study course. Cross-listed in History.			
<b>3310</b>	<b>Global Perspectives on the African Diaspora</b>	<b>U</b>	<b>3</b>
Study of historical processes, key figures and ideas, and cultural expressions of the worldwide dispersion of people of African descent from different times and places. Prereq: Not open to students with credit for 310.			
<b>3320</b>	<b>History of African Cinema</b>	<b>U</b>	<b>3</b>
Emergence and development of African cinema as a film genre and part of material culture. European colonial and ethnographic to modern African cinema. Sometimes this course is offered in distance-only format. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for History 3310. GE historical study and diversity global studies course. Cross-listed in History 3310.			
<b>3361</b>	<b>Psychology of the Black Experience</b>	<b>U</b>	<b>3</b>
An analysis of personality theories commonly applied to black Americans and the black experience. Prereq: Not open to students with credit for 361.			
<b>3370</b>	<b>Being African in America</b>	<b>U</b>	<b>3</b>
We examine the particular experiences of first and second generation Africans in America, for whom today's amplified "us vs. them" rhetoric threatens to fracture what W.E.B. Du Bois called an African American sense of "two-ness." What are the constraints on a doubly conscious "African" and "American" identity in the United States? What are the challenges of sustaining a fragile social pluralism? Prereq: English 1110.			
<b>3376</b>	<b>Arts and Cultures of Africa and the Diaspora</b>	<b>U</b>	<b>3</b>
An overview of African and African diaspora cultures from a historical perspective. Cultural media will include art, literature, film, dance, and photography. Prereq: Not open to students with credit for 376 or HistArt 3102. GE VPA and diversity global studies course. Cross-listed in HistArt 3102.			
<b>3440</b>	<b>Theorizing Race</b>	<b>U</b>	<b>3</b>
Introduction to issues of "race," consideration of the historical emergence and development of ideas of "race" and of racist practices, along with their contemporary formations. Prereq: Any 2367 course, or Philos 2400, or enrollment in Philosophy, Politics, and Economics Major, or permission of instructor. Not open to students with credit for Philos 3440. Cross-listed in Philos.			
<b>3450</b>	<b>The Art and Politics of Hip-Hop</b>	<b>U</b>	<b>3</b>
Explores the world of Hip-Hop, from its birth in the Bronx to its infiltration of music, fashion, television, film, dance, print culture, and politics. It considers critically the intersections of race, class, gender, sexuality, nation, and geography as well as the ways in which Hip-Hop functions simultaneously as aesthetic, analytic, and politic. Prereq: English 1110.			

<b>3956</b>	<b>Black Cultures and Classical Education</b>	<b>U</b>	<b>3</b>
Study the role of classics in African and the African Diaspora (US, Caribbean, Brazil). Major themes include: adaptations of classical literature, impact of classical education, classics as a tool of colonial oppression, classics as a tool of anti-colonial resistance, theories of race, classical and classicizing depictions of black bodies. Prereq: Not open to students with credit for Clas 3956. Cross-listed in Clas. GE lit course. GE diversity global studies course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 6</b>
Exploration of relevant subject as individually designed by student and professor. Prereq: Permission of instructor, and permission of dept chair. Repeatable to a maximum of 6 cr hrs and 2 completions. This course is graded S/U.			
<b>4250</b>	<b>African Politics</b>	<b>U</b>	<b>3</b>
An introductory survey of Sub-Saharan African politics from the pre-colonial period to the contemporary era. It will examine the common themes, issues, and trends that shape politics and development across forty-nine countries. Students will gain an understanding of how context shapes political behavior and how historical and political forces have influenced African politics. Prereq: Not open to students with credit for PolitSc 4597.02 (Au13, African Politics), 4250, or 4250H. GE soc sci orgs and politics and diversity global studies course. Cross-listed in PolitSc.			
<b>4326</b>	<b>Topics in African Americans and Public Policy</b>	<b>U</b>	<b>3</b>
Examination of the impact of public policies on African American communities in the U.S. from the New Deal's Welfare State policies and programs of the 1930s to the present. Prereq: Not open to students with credit for 326.			
<b>4342</b>	<b>Religion, Meaning, and Knowledge in Africa</b>	<b>U</b>	<b>3</b>
While the practice of religion in Africa is as diverse as its people, three major belief systems define the practice: African Traditional Religion, Islam, and Christianity. This course will examine classical and contemporary definitions of African Traditional Religion/s and the introduction and adaptations of Islam and Christianity in Africa. GE cultures and ideas and diversity global studies course.			
<b>4504</b>	<b>Black Politics</b>	<b>U</b>	<b>3</b>
Economic, political, and social constraints on the development of black political power; the efforts made by black people in recent times to organize for effective political action. Prereq: Not open to students with credit for 504 or PolitSc 4140 (504). Cross-listed in PolitSc 4140.			
<b>4515</b>	<b>Ethnicity, Development and the State in Sub-Saharan Africa</b>	<b>U</b>	<b>3</b>
Takes a theoretical and comparative historical approach to analyzing problems of development and ethnic conflict in Sub-Saharan Africa. Prereq: Soph standing or above. Not open to students with credit for 515 or IntStds 4515 (515). Cross-listed in IntStds.			
<b>4535</b>	<b>Topics in Black Masculinity</b>	<b>U</b>	<b>3</b>
A theoretical analysis of constructions, perceptions, and performances of black masculinity locally and globally.			
<b>4551</b>	<b>Topics in Africana Literature</b>	<b>U</b>	<b>3</b>
Topics selected will relate to varying issues in the literatures of the Africa and the African Diaspora. Prereq: 2251, 2281, or English 2281. Not open to students with credit for 551. GE lit and diversity global studies course.			
<b>4557</b>	<b>History of South Africa</b>	<b>U</b>	<b>3</b>
An examination of the political and social developments in South Africa from the 19th century to the present. Prereq: Not open to students with credit for 575.			
<b>4561</b>	<b>Topics in Africana Psychology</b>	<b>U</b>	<b>3</b>
The study of different dimensions of African and African American psychology; topics vary. Prereq: 3361, or permission of instructor. Not open to students with credit for 561. Repeatable to a maximum of 6 cr hrs.			
<b>4565</b>	<b>Topics in African Diaspora Studies</b>	<b>U</b>	<b>3</b>
Selected topics which examine the origins, dimensions, and dynamics of the African Diaspora; topics vary each term. Prereq: 3310. Not open to students with credit for 565. Repeatable to a maximum of 9 cr hrs.			
<b>4571</b>	<b>Black Visual Culture and Popular Media</b>	<b>U</b>	<b>3</b>
An examination of African Americans in visual culture and the theories of representation in popular media. Prereq: Not open to students with credit for 571. GE VPA and diversity soc div in the US course.			
<b>4582</b>	<b>Special Topics in African-American Literature</b>	<b>U</b>	<b>3</b>
Focuses on themes in African American Literature. Topic varies. Examples: Neo-slave narratives; the Harlem Renaissance; literature by African-American women. Prereq: English 2367.01 (367.01), or equiv, and 10 qtr cr hrs, or 6 sem cr hrs or hours of English at 2000-3000 level, or permission of instructor. Not open to students with 10 qtr cr hrs or 6 sem cr hrs for 4582 (582) or Eng 4582 (582). Repeatable to a maximum of 6 cr hrs. Cross-listed in English.			

## 8 African American and African Studies

**4610 African Americans and the Law** U 3

This is an interdisciplinary course that puts major legal cases affecting African Americans into conversation with their historical underpinnings, as well as the social contexts and how those contexts manifest in African American cultural productions. A central goal of the course is to interrogate the idea of a "colorblind" justice system.

**4921 Intersections: Approaches to Race, Gender, Class, and Sexuality** U 3

Examines intersections of race, gender, class, and sexuality in various sites within American culture (e.g., legal system, civil rights discourse, social justice movements). Prereq: One course in CompStd, WGSSt, or AfAmASt. Not open to students with credit for 545, CompStd 4921 (545), or WGSSt 4921 (545). Cross-listed in CompStd and WGSSt.

**4998 Senior Research Seminar** U 3

A seminar designed to provide experience in the creation of a research paper based on appropriate humanities and social science methodologies. Research topic to be announced. Prereq: 2101, 3310, and two 4000- or 5000-level courses; or permission of instructor.

**4999 Thesis Research** U 1 - 6

A program of individual study for undergraduate students: may include individual conferences and reports; requires presentation and oral defense of a thesis. Prereq: Sr standing. This course is graded S/U.

**4999H Honors Thesis Research** U 1 - 3

A program of individual study for undergraduate honors students: may include individual conferences and reports; requires presentation and oral defense of an honors thesis. Prereq: Honors standing, and 24 cr hrs taken in the Social and Behavioral Sciences and/or Humanities (including 12 hours in AfAmASt), and Sr standing. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.

**5189S Community Development: Field Research and Seminar** U G 3 - 6

A service-learning course that draws on the principles of experiential learning by immersing students in an organized service activity that meets identified community needs. Prereq: 1101 or 2101, and permission of course coordinator. Repeatable to a maximum of 6 cr hrs or 2 completions.

**5193 Individual Studies** U G 1 - 3

Individual reading or research projects by special agreement between instructor and student. Prereq: 12 cr hrs in AfAmASt, permission of instructor, and permission of department chair. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 3

Group studies. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**5240 Race and Public Policy in the United States** U G 3

This course explores Race and Public Policy in the United States from Reconstruction to the present. In particular, the class is designed to look at the long list of "hot topics" in the current policy landscape, including policing, housing, wealth gap, immigration, voting, political representation, and others. Prereq: Jr, Sr, or Grad standing; or permission of instructor. Not open to students with credit for CompStd 5240 or PubAfrs 5240. Cross-listed in CompStd and PubAfrs.

**5485.01 Southern Africa: Society and Culture** U G 3

A comparative study of the social, political, cultural, and economic changes in Africa and the impact on contemporary black world. A study of the social and cultural developments in Southern Africa, and the environment. Prereq: English 1110 (110). Not open to students with credit for 485.01 or 705.01. GE cultures and ideas and diversity global studies course.

**5485.02 West Africa: Society and Culture** U G 3

A comparative study of the social, political, cultural, and economic changes in Africa and the impact on contemporary black world. A chronological and interdisciplinary exploration into the cultures and societies of West Africa. Prereq: English 1110. Not open to students with credit for 485.03 or 705.01.

**5650 Blackness and the Body in Science and Medicine** U G 3

This course considers the need for and pursuit of social justice when black bodies are subjected to commodification and systemic subordination. The course focuses on what Frantz Fanon called the "corporeal schema" of blackness as well as the social construction of blackness to think about the relationship between black bodies and social justice pursuits in medicine and science.

**5798.03 Study Tour: Brazil** U G 3

Consists of a two-week educational Study Trip that combines formal lectures by local scholars with visits to local cultural and historical institutions as well as travel within Brazil, the host Latin American country. Prereq: 5485.03. GE education abroad course.

**5798.04 Study Abroad in Africa and the Diaspora** U G 3 - 9

A study tour of Africa and the Diaspora. Students will pay all travel and subsistence costs. Successful application to eligible study abroad program required. Repeatable to a maximum of 12 cr hrs or 2 completions.

**6194 Graduate Group Studies** G 3

Group studies. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

**6757.02 Introduction to Graduate Studies in African American Literature, 1900 to Present** G 3

A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1900 to the present. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 757.02 or English 6757.02 (757.02). Cross-listed in English.

**6999 Master's Thesis Research** G 1 - 12

Research for master's thesis. Prereq: Permission of instructor. Not open to students with credit for 998. This course is graded S/U.

**7086 The Civil Rights and Black Power Movements** G 1 - 6

Examines the origins, evolution, and outcomes of the African American freedom struggle, focusing on the Civil Rights and Black Power movements. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in History.

**7087 Black Women in the United States** G 1 - 6

A study of historical and related scholarship on the history and experience of black women in the United States. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in History.

**7303 Comparative History of the African Diaspora and Post-Emancipation, Colonial, & Post-Colonial Reality** G 3

Examination of social, political, and cultural developments and realities in the black world, from the period of the emancipation to the beginning of the 21st century. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs. Cross-listed in History.

**7420 African Historiography and Methodology** G 3

The study of sources, research methods, interpretations, and research trends in the field of African history. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs. Cross-listed in History.

**7507 Black Lives Matter: Law and Culture** G 3

This course examines law as a site that has defined both blackness and humanness in relationship to African Americans. It also explores black culture to understand various responses to injustice. Prereq: Not open to students with credit for Law 7507. Cross-listed in Law.

**7580 Enslavement, Emancipation, Colonial and Post-Colonial Realities** G 3

History and evolution of the African Diaspora worldwide, from ancient times to the present. Examination of social, political and cultural developments and realities in the Black world. Prereq: Grad standing, or permission of instructor.

**7730 Black Political Movements and Organizations** G 3

Analysis of Black political movements and organizations from slavery to contemporary times. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 730.

**7751 Introduction to Graduate Studies and African Literature** G 3

A broad survey of the development of African literature, its variations, genres, and themes. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 751.

**7753 Graduate Survey in African-American and African Studies** G 3

Critical analysis of the development of African-American and African Studies as a discipline and the theoretical approaches to its subject matter. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 753.

**7754 Methodological Perspectives in African-American and African Studies** G 3

A critical and trans-disciplinary examination of methodological approaches employed in the study of the Black experience in its convergent and divergent manifestations across the world. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 754.

**7756 Theorizing Race and Ethnicity** G 3

Examination of the ideas and theories of race and its intersection with ethnicity. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 756.

**7759 Topics in African Diaspora Studies** G 3

A multi-disciplinary and critical examination of the origins dimensions and legacies of the African Diaspora. Topics will vary each term. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**7760 African Pop Culture** G 3

Examination and critique of various theories and genres of popular culture as they relate to the African situation. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 760.

**7810 Topics in Black Feminist Theory** G 3

Theoretical analysis of the politics and perceptions of womanhood in the black community. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 810.

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<b>8193</b>	<b>Advanced Individual Studies</b>	<b>G</b>	<b>1 - 12</b>
Advanced individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. This course is graded S/U.			
<b>8350</b>	<b>Transnational History of the African World</b>	<b>G</b>	<b>3</b>
Starts from the premise that the African world no longer includes only the continent of Africa, but also the spaces and cultures populated by peoples of African descent. Prereq: Grad standing.			
<b>8865</b>	<b>Race, Gender, and Class in the Diaspora</b>	<b>G</b>	<b>3</b>
An examination of the core influences of race, gender, and class on people of African descent. Prereq: 9 cr hrs taken in Social/Behavioral Sciences, or permission of the instructor. Not open to students with credit for 865.			
<b>8998</b>	<b>Research in African-American and African Studies: Candidacy Exams</b>	<b>G</b>	<b>1 - 12</b>
Research for candidacy exams. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research and Writing</b>	<b>G</b>	<b>1 - 3</b>
Dissertation research and writing. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			

### Agricultural Communication

<b>2130</b>	<b>Visual Media in Agricultural and Natural Resources</b>	<b>U</b>	<b>3</b>
Prepares students to be proficient in photography, photo and video editing, and image composition techniques used in the agricultural and natural resource communications fields. Course includes at least one off-campus field trip.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Planning, conducting, and reporting a special study appropriate to the needs of the student. Prereq: GPA 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group studies for students in specialized programs. Prereq: Permission of instructor. This course is graded S/U.			
<b>2367</b>	<b>Agricultural Issues in Contemporary Society</b>	<b>U</b>	<b>3</b>
This course helps students develop a critical understanding of agricultural, environmental and related issues facing the United States and the world while improving their writing skills. This is a second writing course. Prereq: First writing course. Not open to students with credit for 367. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2531</b>	<b>Introduction to Agricultural Communication Practices</b>	<b>U</b>	<b>3</b>
This course provides an introduction to the field of agricultural communication and examines how agricultural communication fits into the larger U.S. mass media system. This course will introduce the communication process, how media serves as a communication channel, and how agricultural communicators utilize media to reach a variety of audiences.			
<b>3130</b>	<b>Oral Expression in Agriculture</b>	<b>U</b>	<b>3</b>
An introductory public speaking course that will analyze the communication process and prepare students enrolled to write and deliver speeches for various occasions and purposes. Prereq: Not open to students with credit for 390.			
<b>3488</b>	<b>Professional Development In Agricultural Communication</b>	<b>U</b>	<b>1 - 3</b>
Developing Twenty-first Century skills through hands-on, contextual, and authentic, out-of-class experiences. Students, working individually with the instructor, will design and engage in developmental skill activities. An example is the Earl McMunn. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>3797</b>	<b>Agricultural Communication Study Abroad</b>	<b>U</b>	<b>3</b>
Engages students in concentrated study of food, agricultural, and environmental issues in a foreign country, mass media practices in communicating and educating the public about these issues, and the impact of those practices.			
<b>4130</b>	<b>Publication Design and Production</b>	<b>U</b>	<b>3</b>
Introduces students to basic practices and techniques used in designing and producing professional-quality publications for agricultural and general audiences. Agricultural communicators will find application for these skills in a variety of ways. Prereq: Not open to students with credit for 300.			
<b>4191</b>	<b>Agricultural Communication Internship</b>	<b>U</b>	<b>1 - 5</b>
The Agricultural Communication Internship is designed to give you first-hand experience working in a professional communication setting. Regardless of the field, students should be actively involved in the production of information and communication. Prereq: Enrollment in AgrComm major, and permission of instructor. Repeatable to a maximum of 5 cr hrs or 3 completions. This course is progress graded (S/U).			

<b>4191.01</b>	<b>Agricultural Communication Internship</b>	<b>U</b>	<b>2</b>
The Agricultural Communication Internship is designed to give you first-hand experience working in a professional communication setting. Internships may be arranged in publishing, broadcasting, public relations, editing, photojournalism, graphic design or related areas. Regardless of the field, students should be actively involved in the production of information and communication services. Prereq: Permission of instructor. This course is graded S/U.			
<b>4191.02</b>	<b>Agricultural Communication Advanced Internship</b>	<b>U</b>	<b>3</b>
The Ag Comm Advanced Internship is designed to give you in-depth first-hand experience working in a professional communication setting beyond your initial internship experience. Internships may be arranged in publishing, broadcasting, public relations, editing, photojournalism, graphic design or related areas. Regardless of the field, students should be actively involved in comm. production. Prereq: Permission of instructor. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Agricultural Communication</b>	<b>U</b>	<b>1 - 3</b>
Selected topics in Agricultural Communication. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>4530</b>	<b>Communicating Agricultural Issues</b>	<b>U</b>	<b>3</b>
This course is designed to introduce students to the world of communicating agricultural science to a variety of audiences. Many times the topics we are asked to write or speak on are complex science in nature and highly emotional. This course will walk you through the theories and skills needed to craft messages that can reach farmers, consumers, politicians, and the like.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Conducting and reporting an undergraduate research project. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>1 - 3</b>
Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the University's Denman Undergraduate Research Forum. Prereq: CPHR 3.00 or above, and GPA 3.00 or above in major, and permission of project supervisor. Not open to students with credit for 683H. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Research with Distinction</b>	<b>U</b>	<b>1 - 3</b>
Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the University's Denman Undergraduate Research Forum. Prereq: Honors standing, and FAES 4590.01H (590.01H), and CPHR 3.4 or above, and GPA 3.4 or above in major, and permission of honors project supervisor. Not open to students with credit for 683H. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5130</b>	<b>Campaign Design and Management in Agricultural Organization</b>	<b>U G</b>	<b>3</b>
This class is a public relations laboratory class designed to provide students with a how-to, hands-on, problem solving approach to campaign planning for effective public relations. Students will draw on public relations principals and their own experiences to design a real-life, client-centered campaign for a company or organization in Columbus. Prereq: Jr standing or above, and AgrComm major or minor, or ComLdr major; or permission of instructor.			
<b>5135.01</b>	<b>Agricultural Feature Writing</b>	<b>U G</b>	<b>3</b>
This writing-intensive course will introduce AgrComm students to magazine feature writing and provide them with a comprehensive set of skills in feature writing, editing, and style. Students will also assume roles as members of the staff of the AgriNaturalist, the student magazine for the College of Food, Agricultural, and Environmental Sciences. Prereq: 2531 and Comm 2321; or Comm 2221; or Grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5135.02</b>	<b>AgriNaturalist Practicum</b>	<b>U G</b>	<b>3</b>
Provides AgrComm students with a comprehensive set of skills in magazine layout and design, sales, and multimedia journalism by creating print and online versions of the AgriNaturalist magazine. As members of the AgriNaturalist staff, students will gain knowledge of how print and online magazines are created, financed, and disseminated. Prereq: 4130, 5135.01, and 5530; or 5135.01, and Grad standing. Repeatable to a maximum of 6 cr hrs.			
<b>5150</b>	<b>Communication Strategies for Change and Development</b>	<b>U G</b>	<b>3</b>
Examines communication competencies needed by development and social change practitioners. Prereq: Jr or Sr standing, or permission of instructor. Not open to students with credit for 650.			
<b>5170</b>	<b>International Development Theory and Practice</b>	<b>U G</b>	<b>3</b>
We will explore varying theoretical perspectives, trace the history and the ideological underpinnings embedded in it; analyze the actors and their internationalities; and review contemporary views on the subject. Prereq: Not open to students with credit for AEE 790.			



## 10 Agricultural Communication

**5190 Extension Education in Developing Countries** U G 3

What is extension and what are the problems, prospects and challenges facing extension in the developing world? The course provides an opportunity for students to explore issues related to extension in developing countries.

Prereq: Not open to students with credit for AEE 790.

**5193 Individual Studies** U G 1 - 3

Students plan, conduct, and report on a special problem in agricultural communication not included in regular course work.

Prereq: CPHR 2.50 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 3

Selected topics in agricultural communication.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**5197 Agricultural and Environmental Communication Study Abroad** U G 1 - 2

Engages students in concentrated study of media practices in a foreign country, its agricultural, environmental and food systems issues and the role of the media in addressing those issues.

**5530 Advanced Agricultural Communication Technology** U G 3

Course is designed to further introduce students to practices and techniques used in computer-based electronic production when preparing informational and educational messages for public and student audiences in agriculture and natural resources.

Prereq: Not open to students with credit for 350 or AEE 532.

**5535 Data Visualization and Scientific Storytelling in FAES** U G 3

Introduction to design principles and skills needed to clearly and effectively report research results and technical information in both academic and nonacademic communication contexts in food, agricultural, and environmental sciences.

**5797 Study Abroad in Agricultural Communication** U G 3

Engages undergraduate and graduate students in an international learning experience to address their academic and professional interests in agricultural communication. Course objectives and topics will vary based on the country explored and the focus of the experience.

### Agricultural Communication, Education & Leadership

**7000 Graduate Orientation Seminar** G 1

Examination of scholarship in the discipline of agricultural and extension education. Discussion of trends and issues that are important in the disciplines and how trends may influence future career roles.

Prereq: Not open to student with credit for 795.07. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

**7230 Strategic and Program Planning for Visionary Change** G 3

Examination of strategic and program planning models in educational and community settings. Learn about the strategic and program planning process. Understand change and innovation processes in organizational settings.

Prereq: Not open to students with credit for 723 and 823.

**7300 Advanced Methods of Teaching** G 3

Designed as advanced preparation for instruction in formal learning environments, this course focuses on skills, strategies and issues common to educators in general. It will introduce learners to literature and research relevant to practicing educators. Delivered online in an asynchronous format via Carmen, will allow for information transfer and consumption.

**7320 Adult Learning and Professional Development** G 3

This course is designed to provide an introduction to adult learning and professional development to ensure effective programs and education with adult audiences.

Prereq: Not open to students with credit for 622.

**7420 Emerging Trends and Issues in Agricultural Communication, Education and Leadership** G 2

Participants in this course will gain an understanding of global issues and trends facing contemporary agricultural and extension organizations, communication and leadership. Repeatable to a maximum of 4 cr hrs.

**7520 Human Development and Program Planning** G 2

Course provide an introductory understanding of human development and why it is essential for planning programs to serve youth and adults in non-formal and formal education.

**7700 Documenting Change through Evaluation and Accountability** G 3

The key principles and practices used in evaluating the change resulting from educational programs and activities, and how that relates to programming accountability will be covered. Prereq: Not open to students with credit for 770.

**7889 Workshop in Agricultural and Extension Education** G 1 - 3

Intensive study of selected programs, practices, and skills with an emphasis on applications in agricultural and extension education.

Prereq: Teaching or extension experience. Repeatable to a maximum of 18 cr hrs or 18 completions.

**8000 Leading Through Historical Perspectives** G 2

This course will examine the mission, purpose, and historical foundations of Agricultural Communication, Education, and Leadership in America. Furthermore, this course will identify the historical trends and contemporary issues facing these professions in the 21st century.

**8100 Applied Communication Theory and Practice** G 3

A study of the theories and guiding concepts related to agricultural communication in applied and theoretical settings.

Prereq: Grad standing. Not open to students with credit for 840.

**8193 Individual Studies** G 1 - 5

Planning, conducting, and reporting a special study appropriate to the needs of the individual student.

Repeatable to a maximum of 5 cr hrs or 5 completions. This course is progress graded (S/U).

**8200 Critical Perspectives in Leadership Development** G 3

This course will cover the scholarly discipline of leadership theory, based upon critical social theories which are concerned with the flow of power in society, common sense assumptions of rules that govern our experiences, and the influence of social identities. In addition, students will apply theory to practice to address the real world leadership issues within their field.

**8310 Theory of Learning and Cognition** G 3

AEE 8310 provides a framework for the theoretical development of cognitive skills, psychomotor principles, and teaching methods relevant to teaching agricultural content.

Prereq: Ph.D. student in AEE, or permission of instructor.

**8420 Leadership and Administration in Agricultural and Extension Education** G 3

Focuses upon theories, concepts, and principles for leadership, administration, and management in communication, education, extension, and community settings.

Prereq: Not open to students with credit for 795.03 or 842.

**8850 Research Methods** G 2

Principles and techniques of research appropriate for planning, conducting, and reporting research in applied social and life sciences.

Prereq: Not open to students with credit for 885.

**8851 Research Proposal I** G 1

Companion course with 8850 in which students prepare a draft of chapter one for their theses/dissertation research. Students will be supervised by their graduate advisor in collaboration with the 8850 instructor.

Concur: 8850. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

**8855 Research Methods and Design** G 3

This course is designed to establish a culture of scholarship among students enrolled in the Agricultural Communication, Education, and Leadership graduate program. This course provides an overview of different types of quantitative research methods and design, qualitative and mixed methods approaches, and the basics of interpreting statistics and rational research.

**8860 Research Design** G 2

Development of effective design for research problems in applied social and life sciences, including theory, models, and sampling.

Prereq: Not open to students with credit for 886.

**8861 Research Proposal II** G 1

Companion course with 8860 in which students prepare a draft of chapter three for their theses/dissertation research. Students will be supervised by their graduate advisor in collaboration with the 8860 instructor.

Concur: 8860. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

**8870 Analysis and Interpretation of Data** G 2

Analysis and interpretation of descriptive and inferential statistics for research in applied social and life sciences.

Prereq: Not open to students with credit for 887.

**8875 Data Analysis and Interpretation Laboratory** G 1

Learn SPSS statistical data analysis computer program for application and interpretation of descriptive and inferential statistics in research.

Concur: 8870. Not open to students with credit for 795.05. This course is graded S/U.

**8877 Data Collection, Analysis & Interpretation** G 3

A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed.

Prereq: 8855 or equiv.

**8880 Instrumentation and Procedures for Data Collection** G 2

Selection, development, and analysis of various types of instruments and procedures for collecting research data.

Prereq: 8850 (885). Not open to students with credit for 888.

**8998 Graduate Research** G 1 - 3

Graduate student research that is not part of a thesis or dissertation.

Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

# Agricultural Communication, Education & Leadership 11

**8999 Research G 1 - 12**

Research for thesis or dissertation purposes only.  
Repeatable to a maximum of 12 cr hrs or 12 completions. This course is progress graded (S/U).

## Agricultural Systems Management

**1100 Exploring Agricultural Systems Management U ½**

Basic understanding of the global trends within agricultural systems management, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.

**2193 Individual Studies U 1 - 3**

Introductory individual study of problems and topics not included in regular Agricultural Systems Management courses.

Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**2194 Group Studies U 1 - 5**

Introductory group study of selected topics in Agricultural Systems Management

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

**2240 Basic Metal Fabrication for Agriculture U 3**

A study of the principles and practices in basic metal fabrication using the current metallurgical and welding processes required in the agricultural industry.

Prereq: AgSysMt 1100 and FAES 1100 (100), or one of the other university survey courses. Not open to students with credit for AgSysMgt 240 or ConSysM 2240 (ConSysMt 240). This course is available for EM credit.

**2241 Building Materials and Construction in Agriculture U 3**

Principles and techniques used in the fabrication of wood, concrete, and masonry materials used in agri-business and agricultural applications.

Prereq: Not open to students with credit for AgSysMgt 241 or ConSysM 2241 (ConSysMt 241).

**2305 Professional Development I U 2**

Business communications and professional development in agricultural systems management including job search strategies, informative and persuasive writing, academic planning, collaboration, project documentation and reporting, and presentations.

Prereq: English 1110. Not open to students with credit for ConSysM 2305. This course is available for EM credit.

**2310 Electrical Power for Agricultural and Residential Applications U 2**

Concepts of electricity applied to the planning and specification of systems and components essential for generation, distribution and control of electricity for power, heat, motors and illumination in residences and agricultural structures.

Prereq: Math 1130, 1148, 1149, 1150, or 1151. Not open to students with ConSysM 2310. This course is available for EM credit.

**2370 Environmental Hydrology U 2**

Principles of hydrology applied to agricultural and forest watersheds, including applications in drainage, erosion, irrigation, water supply and water quality.

Prereq: Not open to students with credit for AgSysMgt 370. This course is available for EM credit.

**2371 Land Surveying for Agricultural and Environmental Systems U 2**

Principles of land surveying applied to soil and water management on agricultural, forested, and environmentally sensitive areas. Traditional surveying methods, total stations and GPS will be covered.

Prereq: Math 1148 (148), or permission of instructor. Concur: Physics 1103 (103), 1200 (111), or 1250 (131). Not open to students with credit for AgSysMgt 371. This course is available for EM credit.

**2580 Introduction to Digital Agriculture U 2**

An introduction to digital agriculture and the data acquisition and data management systems, analytical tools, machinery systems and crop, animal and environmental models utilized in this rapidly evolving field to enhance the profitability and sustainability of agricultural crop and livestock production systems.

**3191 Internship in Agricultural Systems Management U 2**

A pre-approved internship of planned and supervised work experiences which provide professional and technical growth in the agricultural industry.

Prereq: AgSysMt 2305 (AgSysMgt 305), and enrollment in AgSysMt major, and 8 cr hrs in AgSysMgt, and permission of internship coordinator. Not open to students with credit for AgSysMgt 489.

**3232 Engines and Power Transmission U 3**

Principles of engine theory, operation, maintenance, and repair. In addition, alternative fuels, engine design and basic power transmission will be explored.

Prereq: Math 1130 (130) or 1148 (148), and Physics 1103 (103), 1200 (111), or 1250 (131); or enrollment in Sustainable Plant Systems major or Landscape Construction minor. Not open to students with credit for AgSysMgt 232. This course is available for EM credit.

**3320 Facilities for Agricultural and Greenhouse Production U 3**

Building and equipment design for livestock, crop and greenhouse production; selection and specification of construction materials and ventilation systems.

Prereq: Math 1148 (148), and Physics 1103 (103), 1200 (111), or 1250 (131). Not open to students with credit for AgSysMgt 320.

**3330 Grain Handling, Drying, and Milling U 3**

Principles of handling, drying, storing, and milling grain. Grain handling equipment will include grain pits, conveyors, augers, bucket elevator, and hazard monitoring. Drying and storage will include dryeration, in-bin counterflow drying, batch and continuous flow systems. Dry milling principles will include methods, applications, and parameters such as separation of particle size by sieve.

Prereq: Math 1130, 1131, 1148, 1149, 1150, or 1151.

**3360 Agricultural Machinery Management U 3**

Basic principles of operation, selection and management of agricultural machinery, including power requirements, performance evaluation, calibration, adjustment, costs of operation and optimum size.

Prereq: Math 1148 (148), or permission of instructor. Not open to students with credit for AgSysMgt 360.

**3400 Food Supply-Chain Equipment Operations U 2**

The focus of this course is description of equipment used throughout the food supply chain from harvest/assembly to preparation for consumption. After completing this course, students will recognize how equipment systems are assembled within a facility and the role of sensing and control systems in operation of facilities for handling, manufacturing, storage, distribution and preparation of foods.

Cross-listed in FdScTe.

**3550 Animal and Rural Waste Management U 2**

Management of animal wastes, wastewater and solid waste generated through agricultural practices and rural living to utilize nutrients, recover energy, reuse water, protect public health and abate environmental pollution.

Prereq: Not open to students with credit for AgSysMgt 550.

**3580 UAS and Remote Sensing in Agriculture U 3**

Introduction to Unmanned Aerial Systems (UAS) and remote sensing applications in production agriculture. Topics include: UAS basics; FAA regulations and rule making; mission planning; image sensing technologies, image collection, processing, analyses and interpretation; and agricultural applications.

Prereq: Jr standing, or permission of instructor.

**4193 Individual Studies U 1 - 3**

Advanced individual study of problems and topics not included in regular Agricultural Systems Management courses.

Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**4194 Group Studies U 1 - 5**

Advanced group studies of selected topics in Agricultural Systems Management.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**4300 Engineering Applications in Agriculture U 4**

Engineering and technology applications essential to the operation, selection and management of the processes, machinery, structures, soil and water, and materials handling systems in agriculture.

Prereq: Math 1130 (130) or 1148 (148). Not open to students with credit for 301 or students enrolled in AgSysMt or Eng.

**4560 Fluid Power and Electronics in Agricultural Machinery U 3**

Principles of operation, maintenance, and selection of basic fluid power, electrohydraulic, electronic and computer controlled systems found on agricultural and construction machinery. Prereq: AgSysMt 2310 (AgSysMgt 310) and 3360 (360). Not open to students with credit for AgSysMgt 560.

**4575 Applied Agricultural Water Management U 2**

Planning and managing the drainage, irrigation, erosion and sediment control, water harvesting and storage systems and agricultural constructed wetlands for the agricultural landscape.

Prereq: AgSysMt 2370 (AgSysMgt 370) and 2371 (371), or ConSysM 2440 (ConSysMt 440); and ENR 3000 (300.01); or permission of instructor. Not open to students with credit for AgSysMgt 575.

**4580 Precision Agriculture U 2**

Introduction to the principles and technologies of precision agriculture including: Global Positioning System (GPS), guidance systems, plant and soil sensors, soil sampling, yield mapping and related technologies.

Prereq: Not open to students with credit for AgSysMgt 580.

**4605 Professional Development II U 1**

Developing and pursuing career plans; strategies and programs for employment in the agricultural industry, professional development, personal growth, and relationships.

Prereq: 2305 (AgSysMgt 305), 3360 (AgSysMgt 360), and AgrComm 3130 (390) or Comm 2110 (321), and any second writing course numbered 2367 (367). Not open to students with credit for AgSysMgt 605.

## 12 Agricultural Systems Management

### 4900 Capstone in Agricultural Systems Management I U 2

The course is designed to prepare students on how to work with customers/sponsors/industry mentors to identify the need (problem), begin the steps to develop plausible solutions, develop a scope of work (action plan), and to assemble their findings into a proposal (Preparation for project implementation that will take place the following spring in AgSysMt 4910).  
Prereq: Jr or Sr standing, and enrollment in AgSysMt major; or permission of instructor (scheduled to graduate in the next three semesters).

### 4910 Capstone II - Project Implementation U 2

Building upon prior knowledge and experiences gained through the major, students will develop plausible solution(s) to a real-world problem that relates directly to student's interests and general area of study.  
Prereq: 4900.

### 4998 Undergraduate Research U 1 - 3

Supervised undergraduate research on various topics.  
Prereq: CPHR 2.5 or above and permission of the instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

### 4999 Research with Distinction U 1 - 3

Conducting and reporting research with Distinction. Students are expected to participate in the CFAES Undergraduate Research and the Denman University Undergraduate Research Forums.  
Prereq: CPHR 3.0 or above, and major GPA 3.0 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is progress graded (S/U).

### 4999H Honors Research with Distinction U 1 - 3

Conducting and reporting Honors research with Distinction. Students are expected to participate in the CFAES Undergraduate Research and the Denman University Undergraduate Research Forums.  
Prereq: Honors standing, and FAES 4590.01H (590H), and GPA 3.4 or above, and major GPA 3.4 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

### 5533 Laboratory Pedagogy and Management U G 4

Develops the pedagogical and management skills required to efficiently utilize educational laboratory facilities at the secondary school level for teaching agricultural mechanics and science.  
Prereq: or concur: ASE 5230 (AEE 530), and enrollment in AgriScience Education major. Not open to students with credit for AgSysMgt 533.

### 5600 Agricultural Safety and Health U G 3

Develops the knowledge, awareness and attitude necessary to becoming an effective safety manager in a non-traditional occupational environment. Includes hazard identification and mitigation; safety education, engineering, and enforcement strategies.  
Prereq: Not open to students with credit for AgSysMgt 600.

### 5786 Environmental Issues in East Asia U G 3

STEM students will study emerging, interdisciplinary environmental issues in China, Korea, Japan, Taiwan and Hong Kong, such as air and water pollution, waste management, habitat destruction, exotic species, and energy.  
Prereq: Enrollment in a Science, Technology, Engineering or Math (STEM) discipline, and Jr, Sr, or Grad Standing.

### 7786 Introduction to Graduate - Level East Asian Studies G 1

This interdisciplinary course is a combination of student explorations of scholarly work in East Asia and subjects in these cultures. Readings and presentations on the impact of STEM in agriculture and environment on the cultures in East Asia. Students participate in group discussions of student research and professionalism.  
Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

## Agricultural, Environmental, and Dev Economics

### 1100 Exploring Agribusiness and Applied Economics U ½

Basic understanding of the global trends within agribusiness and applied economics, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.

### 1200 Exploring Sustainability: SUSTAINS LC Seminar U 1

Designed for SUSTAINS Learning Community students to explore their interests within sustainability, learn about opportunities to be involved in campus and local community sustainability efforts, and connect with campus partners and faculty working and researching in the field. Students must be a part of the SUSTAINS Learning Community in order to take this seminar.  
Prereq: Must be in the SUSTAINS Learning Community. This course is graded S/U. Cross-listed in ENR.

### 2001 Principles of Food and Resource Economics U 3

Microeconomic principles applied to allocation issues in the production, distribution, and consumption of food and natural resource use.  
Prereq: Not open to students with credit for 2001H or Econ 2001. This course is available for EM credit. GE soc sci human, nat, and econ resources course.

### 2001H Principles of Food and Resource Economics U 3

Microeconomic principles applied to allocation issues in the production, distribution, and consumption of food and natural resource use.  
Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2001 (200), Econ 2001 (200), or 2001H (200H). GE soc sci human, nat, and econ resources course. SS Admis Cond course.

### 2005 Data Analysis for Agribusiness and Applied Economics U 3

Introductory course in data analysis, stressing computer applications of probability and statistics, problems of data gathering, presentation, and interpretation in economics and business.  
Prereq: Math 1130 (130) or 1131 (131) or 1148 (148) or 1150 (150) or 1151.01 (151.01) or 1151.02 (151.02) or 1156 (151.03). Not open to students with credit for 2005 (205) or ComLdr 3537 (AgrEduc 387 or AEE 387) or HCS 2260 (260) or AnimSci 2260 (260) or Stat 1430 (133) or 1450 (145). GE data only course.

### 2105 Managerial Records and Analysis U 3

Nature and need for business records, analysis and interpretation of essential records from manager/owner viewpoint; their use in small business practices.  
Prereq: 2001 or 2001H or Econ 2001.01, 2001.02, or 2001.03H. Not open to students with credit for AcctMIS 2200 or 2300.

### 2400 Diversity in the Workplace: Challenges and Opportunities U 3

The purpose of this course is to examine how and why diversity affects interpersonal and intergroup interactions in organizations, to develop an understanding of what diversity means, and to explore contemporary organizational strategies for managing workplace diversity while working to better understand what we as individuals bring to the dynamic.  
GE diversity soc div in the US course.

### 2500 Introduction to Sustainability U 3

Introduces students to principles from various disciplines related to social, economic and environmental sustainability. Students will evaluate key concepts and examine tradeoffs that are a part of sustainability action using case studies representing diverse perspectives.  
Prereq: Soph standing, or permission of instructor. Cross-listed in ENR.

### 2580 Feast or Famine: The Global Business of Food U 3

Global and regional trends in food consumption and production are surveyed. Trade, technological change, and other responses to food scarcity are analyzed.  
Prereq: Not open to students with credit for 280 or 335 or IntStds 2580 (280). GE soc sci human, nat, and econ resources and diversity global studies course. Cross-listed in IntStds.

### 3000 Quantitative Methods in Agribusiness and Applied Economics U 3

Solutions to problems in agribusiness and applied economics.  
Prereq: 2001 or Econ 2001; and Math 1130, 1131, 1148, 1150, or 1151.

### 3101 Principles of Agribusiness Management U 3

Introduction to agribusiness management principles and skills in the context of the four functions of management: planning, organizing, directing, and controlling.  
Prereq: 2001 (200) or 2001H (201H) or Econ 2001 (200) or 2001H (200H). Not open to students with credit for 401.

### 3102 Principles of Agribusiness Marketing U 3

Study of specific problems of marketing food and fiber products with emphasis on structures and institutions facing agribusinesses in domestic and international markets.  
Prereq: 2001 (200), 2001H (200H), Econ 2001 (200), or 2001H (201H). Not open to students with credit for 402.

### 3103 Principles of Agribusiness Finance U 3

Financial management of agribusinesses: financial system, time value of money, security valuation, capital budgeting, capital structure, portfolio analysis, financial institutions, futures and options contracts.  
Prereq: 2001 (200), 2001H (200H), Econ 2001 (200), or 2001H (201H); and AEDEcon 2105 (412) or AcctMIS 2200 (211); and AEDEcon 2005 (205), AEE 387, AnimSci 2260 (260), ComLdr 3537, HCS 2260 (260), Stat 1430 (133), or 1450 (145). Not open to students with credit for 403.

### 3104 Farm Business Management U 3

Analysis of resource control and detailed application of economic and management principles to the organization, operation, and administration of farm businesses.  
Prereq: 3101 (401). Not open to students with credit for 410.

### 3105 Principles of Agribusiness and Food Supply Chains U 3

Study of the actors, intrinsic issues and support systems that are essential to make agribusiness, commodity and food supply chains effective.  
Prereq: 2001 or Econ 2001.

### 3113 Commodity Futures and Options Markets U 2

Institutional structure, allocative function, and managerial applications of commodity futures and options markets.  
Prereq: 2001, 2001H, Econ 2001.01, or 2001.03H; and Math 1130 or 1148. Not open to students with credit for 5250.

### 3121 Salesmanship in Agribusiness and Agriculture U 2

Principles and techniques of selling to agribusiness buyers.  
Prereq: 2001 (200), 2001H (201H), Econ 2001 (200), or 2001H (200H). Not open to students with credit for 421.

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<b>3123</b>	<b>Grain Merchandising</b>	<b>U</b>	<b>2</b>
Principles and practices involved in grain and feed marketing and the theory of grain pricing; economics of grain marketing. Prereq: Math 1130 or 1148. Prereq or concur: AEDEcon 3113.			
<b>3131</b>	<b>Advanced Sales Techniques and Practice</b>	<b>U</b>	<b>2</b>
Expands on basic sales principles with additional emphasis on required skills to establish long term customer-client relationships in today's business context. Prereq: 3121.			
<b>3141</b>	<b>Agricultural Cooperatives</b>	<b>U</b>	<b>2</b>
Basic principles of cooperatives including types of organizations, legal aspects, governance, membership relations, debt and equity financing, organizational and inter-cooperative problems, and distribution of earnings. Prereq: 2001, 2001H, Econ 2001, or 2001H. Not open to students with credit for 441 or 541.			
<b>3160</b>	<b>Human Resource Management in Small Businesses</b>	<b>U</b>	<b>3</b>
Students will gain an understanding of the human resource management function in the context of the small business. Emphasis is placed on strategies employed by small business owners to address shifts in workforce demographics, professional expectations, legal requirements, and contemporary workforce issues. Prereq: Jr standing.			
<b>3170</b>	<b>Agribusiness Law</b>	<b>U</b>	<b>3</b>
A study of the legal system and selected areas of law that affect agricultural types of businesses, including civil liabilities, property law, business law and regulatory law. Prereq: 2001 (200), 2001H (200H), Econ 2001 (200), or 2001H (201H). Not open to students with credit for 470 or 670.			
<b>3191</b>	<b>Internship in Agribusiness and Applied Economics</b>	<b>U</b>	<b>2</b>
Supervised experience with an approved firm or organization; pre-approved proposal and report or presentation are required. Prereq: 3101, 3102, 3103, 4001, or Econ 4001, and enrollment in department major, and permission of instructor. Prereq or concur: FAES 3191. This course is graded S/U.			
<b>3488</b>	<b>Professional Development in Agribusiness and Applied Economics</b>	<b>U</b>	<b>1 - 2</b>
Participation in structured co-curricular programs leading to professional development. Prereq: CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 6 or hrs. This course is graded S/U.			
<b>3680</b>	<b>Regional Economics and Sustainable Growth</b>	<b>U</b>	<b>3</b>
Designed to study theories and methodologies for analyzing rural and regional economic development, primarily in advanced economies. Prereq: 2001 (200), or equiv course in Microeconomics.			
<b>4001</b>	<b>Managerial Economics for Agribusiness</b>	<b>U</b>	<b>3</b>
Application of economic theory and methods to agribusiness decision making. Prereq: 3000, and 2001 or 2001H or Econ 2001 or 2001H.			
<b>4002.01</b>	<b>Econometric Applications in Agribusiness and Applied Economics</b>	<b>U</b>	<b>3</b>
Students will be introduced to and gain experience with quantitative statistical models and related methods and their application to agricultural, environmental and development economics and agribusiness. Prereq: 2005 or AnimSci 2260 or ComLdr 3537 or HCS 2260 or Stat 1430 or 1450; and AEDEcon 2001 or 2001H or Econ 2001 or 2001H; and AEDEcon 3000. Prereq or concur: AEDEcon 4001 or Econ 4001.02.			
<b>4002.02</b>	<b>Operations Research in Agribusiness and Applied Economics</b>	<b>U</b>	<b>2</b>
Quantitative models and methods and their application to agricultural, environmental, and development economics and agribusiness. Prereq: 2005 (205), ComLdr 3537 (AEE 387), HCS 2260 (260), AnimSci 2260 (260), Stat 1145 (145), or 1430 (133); and AEDEcon 2001 (200) or 2001H (200H) or Econ 2001 (200) or 2001H (201H); and Math 1131 (131 [Wi 03 or thereafter]) or 1132 (132) or 1151.01 (151.01) or 1152.01 (152.01). Prereq or concur: 4002.01, or Econ 4001 (500) and 4001.02 (501.02). Not open to students with credit for 502.			
<b>4003</b>	<b>Economics of Public Policy Analysis</b>	<b>U</b>	<b>3</b>
Understanding of economic tools and concepts for analyzing public policies important to the food industry, agriculture and natural resources. Prereq: 2001 or 2001H or Econ 2001 or 2001H; and AEDEcon 3000. Prereq or concur: 4001 or Econ 4001.02.			
<b>4100</b>	<b>Self-employment and Entrepreneurship in the Food, Agriculture, and Resource Sectors</b>	<b>U</b>	<b>3</b>
This course analyzes self-employment patterns in the food, agricultural, and resource sectors and considers the role of entrepreneurship in forming and reshaping business and social enterprises in these sectors. Prereq: 2001 or Econ 2001.			
<b>4103</b>	<b>Advanced Agribusiness Finance</b>	<b>U</b>	<b>2</b>
Advanced financial management for farm businesses, agribusinesses, and cooperatives: financial analysis, time value of money, capital budgeting, risk and return, portfolio analysis, credit evaluation, and risk management. Prereq or concur: 3103, or BusFin 3120 or 3220.			

<b>4106</b>	<b>Strategic Management</b>	<b>U</b>	<b>3</b>
Experiential learning and managerial economics applied to strategic management in agribusiness. Formulate managerial strategies in a competitive environment constrained by the firm's products, internal resources, market segments, and supply chains. Prereq: 3101 (401), 3103 (403), and 4001 (500), and a second writing course. Not open to students with credit for 601.			
<b>4191</b>	<b>EEDS Professional Practice in Agricultural, Environmental, and Development Economics</b>	<b>U</b>	<b>2</b>
Preparation of a written report and delivery of a presentation based on internship employment in sustainability-based professions. Prereq: Not open to students with 2 completions or 4 credits of ENR 4191 or 689 or AEDEcon 4191. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies in Agribusiness and Applied Economics</b>	<b>U</b>	<b>2 - 3</b>
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: CPHR 2.50 or above, and permission of instructor. Not open to students with 6 or hrs in 4193 or 693.01-693.08. Repeatable to a maximum of 6 or hrs or 3 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Agribusiness and Applied Economics</b>	<b>U</b>	<b>2 - 5</b>
Selected topics in agricultural economics to acquaint students with current economic conditions. Prereq: Permission of instructor. Not open to students with 10 or hrs of 4194 (694-series). Repeatable to a maximum of 5 or hrs or 2 completions. This course is graded S/U.			
<b>4310</b>	<b>Environmental and Natural Resources Economics</b>	<b>U</b>	<b>3</b>
This introductory course in environmental and natural resource economics provides an economic perspective to analyze contemporary issues in environmental protection and natural resource management. Prereq: 2001 or Econ 2001.			
<b>4320</b>	<b>Energy, the Environment, and the Economy</b>	<b>U</b>	<b>3</b>
Understand the role of energy in the economy and the environment. Explore the economics of clean, renewable energy, and understand the different policies for pollution control. Prereq: 2001 (200) or Econ 2001 (200). Not open to students with credit for 565 or IntStds 4320 (565). Cross-listed in IntStds.			
<b>4320E</b>	<b>Energy, the Environment, and the Economy</b>	<b>U</b>	<b>3</b>
Understand the role of energy in the economy and the environment. Explore the economics of clean, renewable energy, and understand the different policies for pollution control. Prereq: 2001 (200), Econ 2001.01, 2001.02, or 2001.03 (200). Not open to students with credit for 565 or IntStds 4320 (565). Cross-listed in IntStds 4320.			
<b>4330</b>	<b>The Sustainable Economy: Concepts and Methods</b>	<b>U</b>	<b>3</b>
Introduces students to core concepts of sustainability in economics and the quantitative methods necessary to understand and evaluate sustainable development. Prereq: 4310.			
<b>4340</b>	<b>Project Management for Sustainability and Applied Economics</b>	<b>U</b>	<b>3</b>
An introduction to project management concepts and techniques focusing on how to initiate, plan, manage, control, and close projects related to sustainability and applied economics.			
<b>4532</b>	<b>Food Security and Globalization</b>	<b>U</b>	<b>3</b>
Examination of the causes of and solutions for food insecurity. Global and local factors that affect access to food are also considered. Prereq: 2001 (200) or Econ 2001 (200), or permission of instructor. Not open to students with credit for 434 or 532, or IntStds 4532 or 434. Cross-listed in IntStds.			
<b>4534</b>	<b>Comparative Challenges to Economic Development: Sub-Saharan Africa, Latin America, and China</b>	<b>U</b>	<b>3</b>
An introductory survey course of issues shaping economic development in Sub-Saharan Africa, Latin America, and China, such as: population growth, agricultural development, industrialization, trade, structural adjustment, and environmental issues. Prereq: 2001 (200), or 2001H (200H), or Econ 2001 (200), or 2001H (200H). Not open for students with credit for 4536 (536), or 4538 (538), or 4539 (539), or IntStds 4536, (536), or 4538 (538), or 4539 (539). Cross-listed in IntStds.			
<b>4535</b>	<b>International Economic Development</b>	<b>U</b>	<b>3</b>
Study of the growth and diversification of developing economies and the causes of poverty and inequality. Analyze the impacts of human capital formation, markets, and public policy on development. Prereq: 2001 (200) or Econ 2001 (200). Not open to students with credit for 435 or 535, or IntStds 4535 (535) or 435, or PubAfrs 4535. Cross-listed in IntStds and PubAfrs.			
<b>4537</b>	<b>Middle Eastern Economic Development</b>	<b>U</b>	<b>3</b>
Introduction to current economic issues facing and similarities and differences in Middle Eastern countries' growth, inflation, unemployment, fiscal and monetary policy, imports, exports, foreign debt and exchange rate policy. Prereq: 2001 (200) or Econ 2001 (200). Not open to students with credit for 437 or 4537 (537), or Econ 4537 (537), or IntStds 437 or 4537 (537). Cross-listed in Econ and IntStds.			



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**4540 International Commerce and the World Economy** U 3

Application of trade theory and policies to world trade that impacts global business.  
Prereq: 2001 (200) or 2001H (200H), or Econ 2001 (200) or 2001H (200H), or permission of instructor. Not open to students with credit for 540 or IntStds 4540 (540). Cross-listed in IntStds.

**4567 Assessing Sustainability: Project Experience** U 3

Students gain experience in sustainability assessment by applying concepts and quantitative methods to evaluate environmental, economic, social & technical sustainability of specific projects. EEDS major capstone. Co-taught by ENR/AEDE faculty.  
Prereq: 2500 or ENR 2500, and Sr standing; or permission of instructor. Not open to students with credit for ENR 4567. Cross-listed in ENR.

**4597.01 Food, Population, and the Environment** U 3

Issues related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these concerns, especially in low-income countries.  
Prereq: Jr or Sr standing. Not open to students with credit for 597.01, 4597.01H (597.01H), IntStds 4597.01 (597.01), or 4597.01H (597.01H). GE cross-disciplinary seminar course. Cross-listed in IntStds.

**4597.01H Food, Population, and the Environment** U 3

Issues related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these concerns, especially in low-income countries.  
Prereq: Honors standing, and Sr standing; or permission of department or instructor. Not open to students with credit for 597.01H, 4597.01 (597.01), IntStds 4597.01H (597.01H), or 4597.01 (597.01). GE cross-disciplinary seminar course. Cross-listed in IntStds.

**4999 Research With Distinction** U 1 - 3

Conducting and reporting research with Distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum.  
Prereq: CPHR 3.0 overall, and GPA 3.0 or above in major, and permission of project supervisor. Not open to students with credit for 683H. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

**4999H Honors Research With Distinction** U 1 - 3

Conducting and reporting the honors research with distinction. Students are expected to present at the CFAES Undergraduate Research and the Denman University Undergraduate Research Forums.  
Prereq: Honors standing, and FAES 4590.01H (590.01H), and CPHR 3.4 or above, and GPA 3.4 or above, and permission of honors project supervisor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

**5330 Benefit-Cost Analysis** U G 3

Benefit-cost analysis theory and methods and their application to projects pertaining to public infrastructure, agriculture, the environment, natural resources, and human health.  
Prereq: 4310 (531). Not open to students with credit for 6330 or 631.

**5500 Agribusiness and Applied Economics Project Experience** U G 3

Field projects with participating organizations that require application of one or more key principles of agribusiness management or applied economics.  
Prereq: 3101, 3102, 3103, and permission of instructor. Repeatable to a maximum of 6 cr hrs.

**5797 Study at a Foreign Institution** U G 1 - 15

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.  
Prereq: Permission of dept. chairperson. Repeatable to a maximum of 25 cr hrs or 3 completions.

**5900 Food System Planning and the Economy** U G 3

Examines the social, environmental and economic costs and benefits of our food production, distribution, and consumption.  
Prereq: Not open to students with credit for CRPlan 5900 or PubAfrs 5900. Cross-listed in CRPlan and PubAfrs.

**6110 Applied Quantitative Methods I** G 4

Application of econometric and time series method to the analysis of problems in agricultural, environmental, and development economics.  
Prereq: 4001 (500) or Econ 4001 (501), and 2005 (205) or Stat 1430 (133). Not open to students with credit for 701.

**6120 Applied Quantitative Methods II** G 4

Application of mathematical programming and statistical methods to the analysis of problems in agricultural, environmental, and development economics.  
Prereq: 4001 (500) or Econ 4001 (501), and 2005 (205) or Stat 1430 (133). Not open to students with credit for 702.

**6130 Applied Quantitative Methods III** G 4

This course builds upon the applied econometric content in AEDE 6110 by introducing complementary practical methods of data analytics. Topics include data exploration and visualization, model selection and regularization for high dimensional data, supervised and unsupervised machine learning methods. Lectures and labs will feature discussion of technical concepts and computer applications.  
Prereq: 6110, or permission of instructor.

**6194 Group Studies** G 1 - 4

Analysis of special problems in agricultural, environmental, and development economics by various students, under the guidance of an instructor.  
Prereq: Permission of instructor. This course is graded S/U.

**6200 International Economics and Policy** G 3

Application of economic theory and methods to current problems in international economics, policy and trade.  
Prereq: 4001 (500) or Econ 4001 (501). Not open to students with credit for 734.

**6300 Environmental and Resource Economics** G 3

Application of economic theory and methods to current problems in environmental and resource economics.  
Prereq: 4001 (500) or Econ 4001 (501). Not open to students with credit for 831.

**6330 Benefit-Cost Analysis** G 3

Calculus-based benefit-cost analysis theory and methods and their application to projects pertaining to public infrastructure, agriculture, the environment, natural resources, and human health.  
Prereq: Math 1131 (131) or 1151 (151).

**6400 Regional and International Development** G 3

Application of economic theory and methods to current problems in regional and international economic development.  
Prereq: 6010 or 4001 (500), or Econ 4001 (501). Not open to students with credit for 833.

**6401 International Economic Development** G 3

This course is an introduction to international development economics. The goals of this course are to familiarize students with basic theoretical concepts relating to growth and development, the current empirical evidence, and various approaches for policy design and evaluation.  
Prereq: 4001, 6010, or Econ 4001.02.

**6500 Foundations of Data-Driven Sustainable Energy Systems** G 3

Introduction to issues impacting sustainable energy systems across technology, law and policy, business models, resilience, data, geospatial, and decision sciences.  
Prereq: Enrollment in Data-Driven Sustainable Energy Systems Graduate Interdisciplinary Specialization, or permission of instructor. Not open to students with credit for EnvEng 6020, FABEng 6020, Geog 6020, ISE 6020, or PubAfrs 6020. Cross-listed in EnvEng 6020, FABEng 6020, Geog 6020, ISE 6020, and PubAfrs 6020.

**7110 Advanced Quantitative Methods I** G 3

Application of advanced mathematics and mathematical optimization methods to problems in agricultural, environmental, and development economics.  
Prereq: 4001 (500) or Econ 4001 (501).

**7120 Advanced Quantitative Methods II** G 3

Theoretical formulation and numerical analysis of stochastic dynamic models in agricultural, environmental, development and financial economics.  
Prereq: 4001 (500) or Econ 4001.01 (501.01).

**7130 Applied Econometrics I** G 3

A rigorous introduction to techniques of econometric analysis with applications to empirical problems in agricultural, environmental, and development economics.  
Prereq: 4001 (500) or Econ 4001 (501). Not open to students with credit for 801.

**7140 Applied Econometrics II** G 3

Special topics pertaining to the application of econometric methods to empirical problems in agricultural, environmental, and development economics.  
Prereq: 7130 and Econ 8712 (804), or equiv.

**7310 Advanced Environmental Economics** G 3

Application of advanced economic theory and methods to the allocation of environmental goods and services.  
Prereq: Econ 8712 (804). Not open to students with credit for 831.

**7320 Advanced Resource Economics** G 3

Application of advanced economic theory and methods to the allocation and optimal management of exhaustible and renewable natural resources.  
Prereq: Econ 8712 (804).

**7410 Advanced Regional Economics I** G 3

Application of advanced economic theory and methods to problems of regional economic development.  
Prereq: Econ 8712 (804). Not open to students with credit for 840.

**7415 Advanced Regional Economics 2** G 3

Application of advanced economic theory and methods to problems of regional economic development. Continuation of AEDEcon 7410.  
Prereq: Econ 8712.

**7421 Advanced Development Economics I** G 3

Application of advanced economic theory and methods to problems of international economic development.  
Prereq: Econ 8712 (804). Not open to students with credit for 840.

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<b>7425</b>	<b>Advanced Development Economics II</b>	<b>G</b>	<b>3</b>	<p>Application of advanced economic theory and methods to problems of international economic development. Continuation of AEDEcon 7421.</p> <p>Prereq: Econ 8712 (804). Not open to students with credit for 840.</p>
<b>7890</b>	<b>Workshop on Microeconomic Analysis</b>	<b>G</b>	<b>2</b>	<p>Review and synthesis of advanced microeconomic theory and methods. For first-year AEDEcon PhD students preparing for microeconomics qualifying examination.</p> <p>Prereq: PhD standing in AEDEcon, and permission of instructor. This course is graded S/U.</p>
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 18</b>	<p>Individual research for thesis or Plan B paper.</p> <p>Prereq: MS student in AEDEcon. Repeatable to a maximum of 36 cr hrs or 10 completions. This course is graded S/U.</p>
<b>8101</b>	<b>Applied Welfare Economics</b>	<b>G</b>	<b>4</b>	<p>This course will explore questions of how we can use welfare analyses to evaluate policy and inform public policy debates. It takes an applied approach to welfare economics and its application to issues of public policy.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8102</b>	<b>Advanced Applied Econometrics</b>	<b>G</b>	<b>4</b>	<p>This course is designed to introduce you to advanced applied econometric techniques essential for PhD level applied research. We will focus on the applied econometrics, reading, writing and problem-solving skills necessary for you to begin to do your own research.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8103</b>	<b>Seminal Readings in Applied Economics</b>	<b>G</b>	<b>4</b>	<p>This course introduces students to seminal readings in the fields of Agricultural, Environmental, Development and Regional Economics. Students are introduced to a set of seminal readings in each field and are introduced to the critical skills necessary to critically analyze, review, and translate these readings into research proposals.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 4</b>	<p>Analysis of special problems in agricultural, environmental, and development economics by an individual student, under the guidance of an instructor.</p> <p>Prereq: Permission of instructor. Repeatable to a maximum of 27 cr hrs. This course is graded S/U.</p>
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>	<p>Analysis of special problems in agricultural, environmental, and development economics by various students, under the guidance of an instructor.</p> <p>Prereq: Permission of instructor. This course is graded S/U.</p>
<b>8200</b>	<b>Frontiers of AED Economics</b>	<b>G</b>	<b>1 - 6</b>	<p>Critical discussion of seminal and innovative scholarly research in agricultural, environmental, and development economics.</p>
<b>8201</b>	<b>Advanced Agricultural Economics</b>	<b>G</b>	<b>2</b>	<p>This course provides students with an overview and an understanding of the theory guiding production economics as applied to agricultural problems and of the empirical methodologies used to study agricultural production problems.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8202</b>	<b>Agricultural Finance</b>	<b>G</b>	<b>2</b>	<p>This course will focus on the application of financial theories to agricultural economics. Topics include asset pricing, capital structure, capital budgeting, risk, financial stress, and financial institutions.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8203</b>	<b>Frontiers of Agricultural and Food System Economics</b>	<b>G</b>	<b>2</b>	<p>This course will provide students with theoretical foundations that are relevant to settings both within and outside the subfield of agricultural economics, practice in contemporary methods of empirical analysis, and exposure to both current topics of interest in agricultural economics.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8204</b>	<b>Advanced Topics in International Economics</b>	<b>G</b>	<b>2</b>	<p>This course will focus on careful study of a set of seminal articles in international economics. Topics will include Ricardian model of trade, heterogeneous firms and trade, applied general equilibrium and the gravity model and more.</p> <p>Prereq: 6200 or Econ 8861, or permission of instructor.</p>
<b>8301</b>	<b>Frontiers in Resource Economics</b>	<b>G</b>	<b>2</b>	<p>The course will focus on the theory of renewable resource economics, the seminal papers in the field, and will include contemporary issues and advanced topics such as spatial-dynamic problems and coupled human-natural systems.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8302</b>	<b>Nonmarket Valuation</b>	<b>G</b>	<b>2</b>	<p>This course is designed to introduce you to the literature and applied econometric methods needed for nonmarket valuation in Environmental and Resource Economics. Specific topics covered include: Hedonic valuation and real estate markets, Rosen-Roback and quality of life, equilibrium models of location choice, and developing software to estimate cutting-edge econometric models.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8303</b>	<b>Climate Change Economics</b>	<b>G</b>	<b>2</b>	<p>This course will provide students an in-depth exploration of theoretical concepts, methodological advances, and contemporary issues in climate change economics.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8304</b>	<b>Econometric Methods for Environmental Valuation</b>	<b>G</b>	<b>2</b>	<p>This course is designed to introduce you to the econometrics methods needed for stated and revealed nonmarket valuation in Environmental and Resource Economics.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8401</b>	<b>Human Capital</b>	<b>G</b>	<b>2</b>	<p>This course covers the key theories and empirical evidence surrounding investments in human capital. Topics include labor markets, nutrition and health, schooling and education, migration, population and fertility, and intra-household allocation.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8402</b>	<b>Econometrics in Development</b>	<b>G</b>	<b>2</b>	<p>This class will cover cutting edge topics and econometric methods in the development economics literature, examining new methods around IVs, popular machine learning techniques, and non-classical measurement error.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8403</b>	<b>Finance in Economic Development</b>	<b>G</b>	<b>2</b>	<p>This is a doctoral-level course devoted to the microeconomics of risk, saving, credit, and insurance in international economic development, based on critical reading and discussion of seminal and frequently-cited scholarly papers.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8404</b>	<b>Program Evaluation</b>	<b>G</b>	<b>2</b>	<p>The course is intended as an introduction to program evaluation methods using examples from the environmental and development economics literature. It will cover the basic concepts and methods underlying research on policy analysis in developed and developing countries, with a particular emphasis on implementing common program evaluation techniques.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8501</b>	<b>Frontiers in Regional Economics</b>	<b>G</b>	<b>2</b>	<p>This course is designed to acquaint you to the frontiers in regional, urban, spatial and rural economics as well as historical background of current research. We will gain an understanding of the key models that describe regional and urban economics. We will then explore key empirical approaches that underlie regional and urban economics.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8502</b>	<b>Frontiers in Urban and Spatial Economics</b>	<b>G</b>	<b>2</b>	<p>This course builds on AEDEcon 8501 Frontiers in Regional Economics and is designed to further introduce you to topics in urban and spatial economics. The focus will be on applied economic papers on key topics, most of which have a spatial dimension - e.g., they use spatial data, ask interesting questions about space, or seek to account for space in some way.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8601</b>	<b>Applied Economic Dynamics</b>	<b>G</b>	<b>2</b>	<p>The course will focus on the formulation, solution, and analysis of dynamic economic models arising in agricultural, environmental, development, regional and financial economics. Students will be introduced to methods to formulate, solve and analyze dynamic economic models.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8602</b>	<b>Advanced Computational, Mathematical, and Quantitative Methods Applied to Economics</b>	<b>G</b>	<b>2</b>	<p>This course will focus on advanced mathematical, statistical, and computational methods and their application to the formulation, solution, and analysis of economic models arising in agricultural, environmental, development, and regional economics.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor</p>
<b>8603</b>	<b>Survey Methodology</b>	<b>G</b>	<b>2</b>	<p>This course will focus on the theory and practices of survey design and fielding. Emphasis will be given to reducing hypothetical bias, incentive compatibility, as well as sampling error.</p> <p>Prereq: 7140, Econ 8714, and 8732; or permission of instructor.</p>
<b>8800</b>	<b>Seminar in AED Economics</b>	<b>G</b>	<b>1</b>	<p>Critical discussion of current academic research in agricultural, environmental, and development economics.</p> <p>Prereq: Grad standing in AEDEcon. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.</p>
<b>8890</b>	<b>Workshop on Research Methods</b>	<b>G</b>	<b>2</b>	<p>Preparation of research manuscripts in agricultural, environmental, and development economics.</p> <p>Prereq: PhD standing in AEDEcon, and permission of instructor. This course is graded S/U.</p>
<b>8895</b>	<b>PhD Research Seminar</b>	<b>G</b>	<b>1 - 4</b>	<p>PhD Students presenting and discussing research in agricultural, environmental, and development economics under the guidance of an instructor.</p> <p>Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.</p>
<b>8999</b>	<b>Thesis and Dissertation Research</b>	<b>G</b>	<b>1 - 16</b>	<p>Individual research for doctoral dissertation.</p> <p>Prereq: PhD candidate in AEDEcon. Repeatable. This course is graded S/U.</p>

## 16 Agriscience Education

### Agriscience Education

<b>2189</b>	<b>Early Experience in Agriscience Education</b>	<b>U</b>	<b>1</b>
The early experience program is designed to help students explore careers and gain experience in Agriscience Education. Prereq: Not open to students with credit for AEE 280.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Planning, conducting, and reporting a special study appropriate to the needs of the student. Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group studies for students in specialized programs. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>3488</b>	<b>Professional Development in Agriscience Education</b>	<b>U</b>	<b>1 - 3</b>
Developing Twenty-first Century skills through hands-on, contextual, and authentic, out-of-class experiences. Students, working individually with the instructor, will design and engage in developmental skill activities. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.			
<b>4189</b>	<b>Context-Based Learning in Agriscience Education</b>	<b>U</b>	<b>1</b>
Agriscience education students will be immersed in advanced field experience, documenting hours toward initial teacher licensure. ASE 4189 will provide students the opportunity to further understand and develop best practices in teaching and learning centered around youth development and experiential learning within authentic agriscience education learning environments. Prereq or concur: 5210.			
<b>4194</b>	<b>Group Studies in Agriscience Education</b>	<b>U</b>	<b>1 - 3</b>
Specialized topics in Agriscience Education. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>4220</b>	<b>Methods of Teaching Agriscience I</b>	<b>U</b>	<b>3</b>
An introductory instructional methodology course focused on analyzing the principles of teaching and learning, and designing instruction for teaching agriscience education in a formal classroom environment.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Conducting and reporting an undergraduate research project. Prereq: Permission of instructor. This course is graded S/U.			
<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>1 - 6</b>
Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum. Prereq: CPHR 3.0 or above, and GPA 3.0 or above, and permission of project supervisor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5189</b>	<b>Planned Field Experience</b>	<b>U G</b>	<b>1 - 2</b>
Agriscience education M.Ed. students will be immersed in planned field experience, documenting hours toward initial teacher licensure. ASE 5189 will provide students the opportunity to further understand and develop best practices in teaching and learning centered around youth development and experiential learning within agriscience education. Prereq: Admission to the M.Ed. program. Repeatable to a maximum of 2 cr hrs or 2 completions.			
<b>5193</b>	<b>Individual Studies in Agriscience Education</b>	<b>U G</b>	<b>1 - 3</b>
Planning, conducting, and reporting a special study appropriate to the needs of the student. Prereq: CPHR 2.50 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group studies for students in specialized programs. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>5210</b>	<b>Youth Development and Experiential Learning within Agriscience Education</b>	<b>U G</b>	<b>2</b>
This course provides pre-service agricultural education candidates philosophies and mechanisms for youth engagement within a comprehensive agricultural education program. Through the exploration of Positive Youth Development and Experiential Learning Theory, pre-service candidates will explore youth engagement through individual program components and intracurricular experiences. Prereq: 4220, and Jr standing.			
<b>5220</b>	<b>Methods of Teaching Agriscience II</b>	<b>U G</b>	<b>3</b>
ASE 5220 is a methods of teaching course. In ASE 5220 students will further explore the teaching and learning process with an emphasis on planning and delivering agriscience instruction in public schools. Students will demonstrate competence in agricultural literacy and science-based agriculture instruction through the use of a variety of teaching methods. Prereq: 5210, and Sr Standing.			

<b>5230</b>	<b>Methods of Teaching in Agriscience Education</b>	<b>U G</b>	<b>3</b>
Examining the teaching and learning process with emphasis on planning and delivering agriscience instruction in public schools. Students will demonstrate competence in agricultural literacy instruction, and science-based agriculture instruction. Prereq: AEE 230 and 280. Not open to students with credit for AEE 530.02.			
<b>5231</b>	<b>Experiential Learning in Agriscience Education</b>	<b>U G</b>	<b>2</b>
Provides future secondary agriscience teachers with a foundation in experiential education as part of a comprehensive agricultural education program including supervised agricultural experience and career technical student leader organizations. Prereq: Not open to students with credit for AEE 531.			
<b>5255</b>	<b>Program Planning in Agriscience Education</b>	<b>U G</b>	<b>2</b>
Principles and procedures used in planning and conducting programs of career and technical education in the public schools. Prereq: Not open to students with credit for AEE 585.			
<b>5280</b>	<b>Internship in Agriscience Education</b>	<b>U G</b>	<b>4</b>
Supervised participation in teaching and other professional responsibilities of teachers of agriculture in the public schools. Prereq: 5230 and 5231. Not open to students with credit for AEE 580.01.			
<b>5281</b>	<b>Capstone in Agriscience Education</b>	<b>U G</b>	<b>4</b>
Clinical analysis of teaching agriculture in the public schools, conferences, and seminars. Prereq: 5230 and 5231. Not open to students with credit for AEE 580.02.			
<b>5282</b>	<b>Evaluation in Agriscience Education</b>	<b>U G</b>	<b>4</b>
Lesson plan development, written assignments, and other documentation of teaching agriculture in the public schools, conferences, and seminars. Prereq: 5280 and 5282. Not open to students with credit for AEE 580.03.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>3</b>
The study abroad program will provide undergraduate and graduate students with an opportunity to learn about agriculture and related issues in a foreign country and receive credit for that work. Repeatable to a maximum of 9 cr hrs.			

### Air Force Aerospace Studies

<b>1001</b>	<b>The Foundation of the United States Air Force I</b>	<b>U</b>	<b>1</b>
Introduction to the United States Air Force and ROTC. Officership and military customs and courtesies are discussed. Foundations of Air Force communication are covered.			
<b>1002</b>	<b>The Foundation of the United States Air Force II</b>	<b>U</b>	<b>1</b>
Looks at the origin and organization of the Air Force. Selected topics contributing to an understanding of the Air Force are covered.			
<b>1101</b>	<b>Heritage and Values of the United States Air Force I</b>	<b>U</b>	<b>1</b>
A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.			
<b>1102</b>	<b>Heritage and Values of the United States Air Force II</b>	<b>U</b>	<b>1</b>
A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.			
<b>1111</b>	<b>Freshmen Leadership Lab I</b>	<b>U</b>	<b>0</b>
An introduction to the practical application of basic leadership principles in the United States Air Force. Prereq: Enrollment in Air Force ROTC program. Concur: 1101. This course is graded S/U.			
<b>1112</b>	<b>Freshmen Leadership Lab II</b>	<b>U</b>	<b>0</b>
An introduction to the practical application of basic leadership principles in the United States Air Force. Prereq: Enrollment in Air Force ROTC program. Concur: 1102. This course is graded S/U.			
<b>2001</b>	<b>Evolution of United States Air Force Air and Space Power I</b>	<b>U</b>	<b>1</b>
Examines air and space power from an historical perspective. Covers early flight and World War I to the Korean War and ICBMS.			
<b>2002</b>	<b>Evolution of United States Air Force Air and Space Power II</b>	<b>U</b>	<b>1</b>
Examines air and space power from an historical perspective. Covers period from the Vietnam War to the Gulf War plus a look at the Air Force of the future.			
<b>2101</b>	<b>Team and Leadership Fundamentals I</b>	<b>U</b>	<b>1</b>
Focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset.			
<b>2102</b>	<b>Team and Leadership Fundamentals II</b>	<b>U</b>	<b>1</b>
Focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset.			

## Air Force Aerospace Studies 17

<b>2111</b>	<b>Sophomore Leadership Lab I</b>	<b>U</b>	<b>0</b>
An intensified employment of leadership principles and practices relevant to future Air Force Officers. Prereq: Enrollment in Air Force ROTC program. Concur: 2101. This course is graded S/U.			
<b>2112</b>	<b>Sophomore Leadership Lab II</b>	<b>U</b>	<b>0</b>
An intensified employment of leadership principles and practices relevant to future Air Force Officers. Prereq: Enrollment in Air Force ROTC program. Concur: 2112. This course is graded S/U.			
<b>2121</b>	<b>FTP Leadership Lab I</b>	<b>U</b>	<b>0</b>
This course is for Air Force ROTC Cadets who have completed all Freshman and Sophomore Air Science courses but who have not earned and junior enrollment allocation. Prereq: 2102, and enrollment in Air Force ROTC program. This course is graded S/U.			
<b>2122</b>	<b>FTP Leadership Lab II</b>	<b>U</b>	<b>0</b>
This course is for Air Force ROTC Cadets who have completed all Freshman and Sophomore Air Science courses but who have not earned and junior enrollment allocation. Prereq: 2102, and enrollment in Air Force ROTC program. This course is graded S/U.			
<b>3001</b>	<b>Air Force Leadership Studies I</b>	<b>U</b>	<b>3</b>
Study of leadership professional knowledge and communication skills required for an Air Force officer. The role of a leader as supervisor and counselor is discussed. Prereq: 1001, 1002, 2001, and 2002, and permission of instructor.			
<b>3002</b>	<b>Air Force Leadership Studies II</b>	<b>U</b>	<b>3</b>
Study of quality management fundamentals and communication skills for the Air Force officer. The Air Force personnel evaluation system and military ethics are discussed. Prereq: 1001, 1002, 2001, 2002, and 3001, and permission of instructor.			
<b>3101</b>	<b>Leading People and Effective Communication I</b>	<b>U</b>	<b>3</b>
Teaches students advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Students have an opportunity to try out these leadership and management techniques in a supervised environment.			
<b>3102</b>	<b>Leading People and Effective Communication II</b>	<b>U</b>	<b>3</b>
Teaches students advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Students have an opportunity to try out these leadership and management techniques in a supervised environment. Prereq: 3101.			
<b>3111</b>	<b>Junior Leadership Lab I</b>	<b>U</b>	<b>0</b>
An advanced application of leadership theory, skills, and practices for prospective Air Force Officers. Prereq: Enrollment in Air Force ROTC program. Concur: 3101. This course is graded S/U.			
<b>3112</b>	<b>Junior Leadership Lab II</b>	<b>U</b>	<b>0</b>
An advanced application of leadership theory, skills, and practices for prospective Air Force Officers. Prereq: Enrollment in Air Force ROTC program. Concur: 3102. This course is graded S/U.			
<b>4001</b>	<b>Air Force Defense Studies I</b>	<b>U</b>	<b>3</b>
Course examines the political, economic and social constraints upon national security and defense structure. The role of the military including joint operations is discussed. Regional defense issues studies. Prereq: 1001, 1002, 2001, 2002, 3001, and 3002, and permission of instructor.			
<b>4002</b>	<b>Air Force Defense Studies II</b>	<b>U</b>	<b>3</b>
The role of the military and regional defense are studied. Current air force issues and other topics relevant to preparing an air force officer for active duty are covered. Prereq: 1001, 1002, 2001, 2002, 3001, 3002, and 4001, and permission of instructor.			
<b>4101</b>	<b>National Security Affairs/Preparation for Active Duty I</b>	<b>U</b>	<b>3</b>
Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the students for Active Duty. Prereq: 3102.			
<b>4102</b>	<b>National Security Affairs/Preparation for Active Duty II</b>	<b>U</b>	<b>3</b>
Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the students for Active Duty. Prereq: 4101.			
<b>4111</b>	<b>Senior Leadership Lab I</b>	<b>U</b>	<b>0</b>
A culmination of the knowledge, skills, theory, and leadership practices acquired in the Air Force ROTC program to ensure that prospective Air Force Officers are ready to receive a commission in the United States Air Force. Prereq: Enrollment in Air Force ROTC program. Concur: 4101. This course is graded S/U.			

<b>4112</b>	<b>Senior Leadership Lab II</b>	<b>U</b>	<b>0</b>
A culmination of the knowledge, skills, theory, and leadership practices acquired in the Air Force ROTC program to ensure that prospective Air Force Officers are ready to receive a commission in the United States Air Force. Prereq: Enrollment in Air Force ROTC program. Concur: 4102. This course is graded S/U.			
<b>4121</b>	<b>Air Science Individual Studies I</b>	<b>U</b>	<b>0</b>
This course is for Air Force ROTC Cadets who have completed all Air Science courses required for commissioning but who still need other university courses for graduation. Prereq: 4102, and enrollment in Air Force ROTC program. This course is graded S/U.			
<b>4122</b>	<b>Air Science Individual Studies II</b>	<b>U</b>	<b>0</b>
This course is for Air Force ROTC Cadets who have completed all Air Science courses required for commissioning but who still need other university courses for graduation. Prereq: 4102, and enrollment in Air Force ROTC program. This course is graded S/U.			

### American Indian Studies

<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research in variable topics related to American Indian Studies. Student-initiated projects. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Research in American Indian Studies Honors</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate honors student research or creative project in variable topics related to American Indian Studies. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research: Thesis</b>	<b>U</b>	<b>1 - 4</b>
A program of reading arranged for each student, with individual conferences, reports, paper and/or thesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 4</b>
A program of reading, research, writing, and/or creative work arranged for each student, with individual conferences, progress reports, and honors thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5191</b>	<b>Internship</b>	<b>U G</b>	<b>1 - 3</b>
Workplace experience requiring writing and/or research. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Individual directed study for work not typically offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Directed group study for a topic not offered in regular courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5700</b>	<b>American Indian Studies Workshop</b>	<b>U G</b>	<b>1 - 3</b>
Structured participation in seminar or event organized for that semester. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

### American Sign Language

<b>1101</b>	<b>Elementary American Sign Language I</b>	<b>U</b>	<b>4</b>
Students develop elementary ASL skills-receptive (listening) and expressive (speaking). American deaf culture and history introduced with an emphasis on making comparisons and connections to one's own culture. Instruction primarily in ASL. Not open to native users of ASL. Prereq: Not open to students with 2 or more years of ASL study in high school. Not open to students with credit for 101, English 101, or EduTL 101. This course is available for EM credit. GE for lang course.			
<b>1102</b>	<b>Elementary American Sign Language II</b>	<b>U</b>	<b>4</b>
Further development of ASL skills. Focus on talking about others. Continued exploration of American deaf culture and history. Instruction primarily in ASL. Not open to native users of ASL. Prereq: 1101 (101), English 101, or EduTL 101. Not open to students with credit for 102, English 102, or EduTL 102. This course is available for EM credit. GE for lang course.			
<b>1103</b>	<b>Intermediate American Sign Language</b>	<b>U</b>	<b>4</b>
Advanced development of ASL skills. Focus on talking about community. Continued exploration of American deaf culture and history. Instruction primarily in ASL. Not open to native users of ASL. Prereq: 1102 (102), English 102, or EduTL 102. Not open to students with credit for 103, EduTL 113, or SphHmg 103, or equiv. This course is available for EM credit. GE for lang course.			



## 18 American Sign Language

<b>2104</b>	<b>American Sign Language Conversational Discourse</b>	<b>U</b>	<b>3</b>
This course is designed to develop conversational discourse and personal narrative skills in ASL. Students will continue the development of ASL communication skills both receptively and expressively, by expanding on ASL vocabulary and ASL grammar. These skills will allow students the ability to expand conversations in ASL beyond every day topics. Course instruction is in the target language, ASL. Prereq: A grade of C or better in 1103, or permission of department.			
<b>3105</b>	<b>American Sign Language Literature</b>	<b>U</b>	<b>3</b>
This course is an introduction to American Sign Language Literature through exploration and analysis of storytelling and poetry of the American Deaf Community. Students will expand their expressive and receptive skills by examining and deciphering ASL Literary works by native ASL users as well as by creating their own works of literature using ASL. Knowledge and use of ASL is required. Prereq: A grade of C- or above in 2104, or permission of department.			
<b>3350</b>	<b>American Deaf Arts and Literature</b>	<b>U</b>	<b>3</b>
Survey of literary and artistic works about being deaf that are written or created by individuals who are American deaf. Prereq: Not open to students with credit for ArtsSci 350.			
<b>4189S</b>	<b>Intersection of American Sign Language, Deaf Culture, and the Deaf Community</b>	<b>U</b>	<b>3</b>
Designed to increase student awareness of agencies and organizations that serve the central Ohio deaf community. Students will have the opportunity to use American Sign Language with fluent users and apply their understanding of cultural norms and expectations through providing needed services and support at those organizations. Prereq: 1101, and permission of instructor or department.			

## Anatomy

<b>1300</b>	<b>SuperAnatomy</b>	<b>U</b>	<b>3</b>
Today's pop culture includes icons from movies, television shows, and comics superheroes (including metahumans, aliens, & humans with advanced technology). The SuperAnatomy course is a 3-credit hour course that teaches basic systemic human anatomy and physiology with the help of superheroes. Lectures introduce normal human anatomy and physiology, compares superhero powers & modern technology.			
<b>2100.01</b>	<b>Introductory Human Anatomy</b>	<b>U</b>	<b>3</b>
A regional study of the basic structure and terminology associated with the human body. Prereq: Health Science students in Continuing Education (CED), University Exploration (EXP), and Arts and Sciences (ASC) only. Not open to students with credit for 2300.xx or 3300.xx.			
<b>2100.02</b>	<b>Introductory Human Anatomy</b>	<b>U</b>	<b>3</b>
Regional study of the basic structure and terminology associated with the human body. Prereq: Biology 1101, 1102, 1113, or 1114, or permission of instructor; and enrollment as a Health Science student in Continuing Education (CED), University Exploration (EXP), or Arts and Sciences (ASC). Not open to students with credit for 2300.xx or 3300.xx.			
<b>2100.03</b>	<b>Introductory Human Anatomy</b>	<b>U</b>	<b>3</b>
Regional study of the basic structure and terminology associated with the human body. Prereq: Health Science students in Continuing Education (CED), University Exploration (EXP), and Arts and Sciences (ASC) only. Not open to students with credit for 2300.xx or 3300.xx.			
<b>2100.04</b>	<b>Introductory Human Anatomy</b>	<b>U</b>	<b>3</b>
Regional study of the basic structure and terminology associated with the human body. Prereq: Biology 1101, 1102, 1113, or 1114, or permission of instructor; and enrollment as a Health Science student in Continuing Education (CED), University Exploration (EXP), or Arts and Sciences (ASC). Not open to students with credit for 2300.xx or 3300.xx.			
<b>2220</b>	<b>Human Structure and Function for Engineers</b>	<b>U</b>	<b>3</b>
Offers a block of lectures and laboratories that present the fundamentals of human anatomy and physiology tailored to undergraduate bioengineering students. Prereq: Enrollment in BiomedE major, or permission of instructor.			
<b>2300.01</b>	<b>Human Anatomy</b>	<b>U</b>	<b>4</b>
Regional study of the basic structure and terminology associated with the human body. Laboratory includes demonstrations on prosected human cadavers. Prereq: Health Science students in Continuing Education (CED), University Exploration (EXP), and Arts and Sciences (ASC) only. Not open to students with credit for 2100.xx or 3300.xx.			
<b>2300.02</b>	<b>Human Anatomy</b>	<b>U</b>	<b>4</b>
Regional study of the basic structure and terminology associated with the human body. Laboratory includes demonstrations on prosected human cadavers. Prereq: Enrollment in Dental Hygiene (DHY) only. Not open to students with credit for 2100.xx or 3300.xx.			
<b>2300.03</b>	<b>Human Anatomy</b>	<b>U</b>	<b>4</b>
Regional study of the basic structure and terminology associated with the human body. Laboratory includes demonstrations on prosected human cadavers. Prereq: Enrollment in pre-Nursing. Not open to students with credit for 2100.xx or 3300.xx.			

<b>2300.04</b>	<b>Human Anatomy</b>	<b>U</b>	<b>4</b>
Regional study of the basic structure and terminology associated with the human body supplemented with computer-assisted instruction. Laboratory includes demonstrations on prosected human cadavers. Prereq: Enrollment in pre-Health and Rehabilitation Sciences (pre-HRS), Health and Rehabilitation Sciences (HRS), pre-Optometry (pre-Opt), Exercise Science (ExSci), pre-Pharmacy (pre-Pharm), Education and Human Ecology (EHE), or pre-Dental (pre-Dent) only. Not open to students with credit for 2100.xx or 3300.xx.			
<b>2300.05</b>	<b>Human Anatomy</b>	<b>U</b>	<b>4</b>
Regional study of the basic structure and terminology associated with the human body. Laboratory includes demonstrations on prosected human cadavers. Prereq: Biology 1101, 1102, 1113, or 1114, or permission of instructor; and enrollment as a Health Science student in Continuing Education (CED), University Exploration (EXP), or Arts and Sciences (ASC). Not open to students with credit for 2100.xx or 3300.xx.			
<b>3050</b>	<b>Undergraduate Neuroanatomy Laboratory</b>	<b>U</b>	<b>1</b>
Exploration of human neuroanatomy through hands-on laboratory experiences that utilize cadaveric materials, histological cross sections, and imaging. Prereq: 2100, 2300, or 3300, and Neurosc 3050 (or concurrent) or permission of instructor.			
<b>3300.01</b>	<b>Advanced Human Anatomy</b>	<b>U</b>	<b>5</b>
Fundamental principles of human anatomy using a regional approach. Instructional format includes lecture, laboratory with prosected human cadavers, and practical examinations. Highly recommended for pre-occupational therapy, pre-physical therapy, pre-physician assistant, pre-dental, and pre-medical students. Prereq: Not open to students with credit for 2100.xx or 2300.xx.			
<b>3300.02</b>	<b>Advanced Human Anatomy</b>	<b>U</b>	<b>5</b>
Fundamental principles of human anatomy using a regional approach. Instructional format includes lecture, laboratory with prosected human cadavers, and practical examinations. Highly recommended for pre-occupational therapy, pre-physical therapy, pre-physician assistant, pre-dental, and pre-medical students. Prereq: Biology 1101, 1102, 1113, or 1114, or permission of instructor. Not open to students with credit for 2100.xx or 2300.xx.			
<b>4300</b>	<b>Human Anatomy with Dissection</b>	<b>U</b>	<b>4</b>
Advanced undergraduate study of the structure of the human body through regional dissection of a human cadaver and an introduction to histology, embryology, neuroanatomy, and medical imaging. Prereq: 2300.xx (199.xx) or 3300 (200), and permission of instructor.			
<b>4600</b>	<b>Human Embryonic Development and Birth Defects</b>	<b>U</b>	<b>2</b>
Systematic study of the basic embryological development of the human correlated with common birth defects. Prereq: 2100, 2300, or 3300, or permission of instructor.			
<b>4700</b>	<b>Undergraduate Histology</b>	<b>U</b>	<b>4</b>
Systematic study of the basic microscopic structure of mammalian cells, tissues, and organs correlated with function. Prereq: 2100, 2300, or 3300, or permission of instructor.			
<b>5300</b>	<b>Learning Human Anatomy Through Dissection</b>	<b>U G</b>	<b>2</b>
Enables students with introductory human gross anatomy experience the opportunity to further investigate the human body through the complete dissection of a human cadaver. Prereq: A grade of B- or better in 2300 or 3300, or equiv; and an application (with selection process), and permission of Course Director. This course is graded S/U.			
<b>5440</b>	<b>Advanced Regional Dissection for Undergraduate Students</b>	<b>U G</b>	<b>2</b>
Enables students with introductory human gross anatomy experience the opportunity to further investigate the human body through the in-depth independent dissection of one or more regions of the human body. Prereq: A grade of B- or above in 2300 or 3300 or equiv., and an application (with selection process), and permission of Course Director. Repeatable to a maximum of 6 or hrs.			
<b>5710</b>	<b>History of Anatomy</b>	<b>U G</b>	<b>3</b>
This course examines the history of anatomy as a way categorizing and explaining the relationships of parts to wholes in once living creatures, notably human beings. We focus on the history of anatomical observations, education, modes of communication, and professionalization. Prereq: 2220, 2300, or 3300; or Grad standing; or permission of both instructors. Cross-listed in History.			
<b>6000</b>	<b>Advanced Musculoskeletal Anatomy</b>	<b>G</b>	<b>5</b>
Musculoskeletal anatomy of the human body through an in-depth dissection experience. Prereq: Enrollment in DPT, OTD, or MOT programs, and permission of instructor.			
<b>6193</b>	<b>Individual Studies in Anatomy</b>	<b>G</b>	<b>1 - 5</b>
Enables the student to pursue a minor investigation in some anatomical field of choice. Prereq: Grad standing in Anatomy, or permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			

<b>6440</b>	<b>Regional Dissection for Anatomy Non-Majors</b>	<b>G</b>	<b>3 - 4</b>
Guided regional human cadaveric dissection for graduate students outside the Anatomy MS or PhD programs. The course allows for focus on a specific region of human anatomy dissection. Allow for 4-8 hours/week of lab dissection. Instructor permission to enroll. Prereq: Grad standing, and permission of instructor. Not open to students enrolled in the Anatomy MS or PhD program. Repeatable to a maximum of 10 cr hrs or 3 completions.			
<b>6511</b>	<b>Human Anatomy for Dental Students I</b>	<b>M</b>	<b>7</b>
Introduces dental students to the basic concepts of human gross anatomy, histology, neuroscience and embryology. Prereq: Enrollment in Dentistry, or permission of instructor.			
<b>6512</b>	<b>Human Anatomy for Dental Students II</b>	<b>M</b>	<b>8</b>
Continues the introduction of dental students to the basic concepts of human gross anatomy, histology, neuroscience and embryology. Prereq: Enrollment in Dentistry, or permission of instructor.			
<b>6540</b>	<b>Regional Dissection for Anatomy Majors</b>	<b>G</b>	<b>2 - 4</b>
Guided regional human cadaveric dissection for Anatomy graduate students in either the Anatomy MS or PhD programs. The course allows for focus on a specific region of human anatomy dissection. Allow for 4-8 hours/week of lab dissection. Instructor permission & Anatomy 6900 are required to enroll. Prereq: 6900, enrollment in the Anatomy MS or PhD program, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>6600</b>	<b>Human Embryology</b>	<b>G</b>	<b>2</b>
Designed to acquaint graduate students with a basic knowledge of human embryology. Prereq: Grad standing in Anatomy, or permission of instructor. Not open to students with credit for 710.			
<b>6700</b>	<b>Human Histology</b>	<b>G</b>	<b>4</b>
The microscopic study of cells, tissues, and organs with particular emphasis on human. The microscopic structure of various organ systems are integrated with their functions. Prereq: Grad standing in Anatomy, or permission of instructor.			
<b>6800</b>	<b>Human Neuroanatomy</b>	<b>G</b>	<b>4</b>
Introduces graduate students to the basic concepts of human neuroanatomy. Prereq: Grad standing in Anatomy, or permission of instructor. Not open to students with credit for NeuroSc 716.			
<b>6900</b>	<b>Human Anatomy for Graduate Students</b>	<b>G</b>	<b>8</b>
Graduate level study of human anatomy by regional dissection. Anatomy 200 or equivalent is recommended. Prereq: Permission of instructor.			
<b>7289</b>	<b>Practicum: Developing Educational Components</b>	<b>G M</b>	<b>1 - 4</b>
Practical experience developing education tool(s) and/or curricular component(s) in Anatomy. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>7310</b>	<b>Advanced Anatomy for Dental Residents</b>	<b>G</b>	<b>1</b>
Advanced head and neck anatomy for residents in the dental specialties. Prereq: DDS or equiv, and enrollment as a resident or fellow in dental residency program.			
<b>7500</b>	<b>Imaging in Human Anatomy</b>	<b>G</b>	<b>2</b>
Application of knowledge of the anatomy of the human body to the interpretation and understanding of diagnostic images. Prereq: 6900 or equiv, and permission of instructor.			
<b>7800</b>	<b>History of Anatomy</b>	<b>G M</b>	<b>2 - 3</b>
The primary focus of this seminar course is to introduce students to the chronology, global context, and impact of anatomy, with focuses on education, illustration, research, and ethics. This course will provide students with exposure to the evolution of the science of anatomy, while also developing professional skills through in-class and online discussions, and oral presentations. Prereq: Grad standing in Anatomy or permission of instructor.			
<b>7890</b>	<b>Anatomy Seminar in Education</b>	<b>G M</b>	<b>1</b>
Readings and discussion of topics in anatomical education or biomedical pedagogy and curricular development pertinent to anatomy. Prereq: Grad standing in Anatomy, or permission of instructor. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.			
<b>7891</b>	<b>Anatomy Seminar in Research</b>	<b>G</b>	<b>1</b>
Readings and discussion of topics in biomedical or educational research pertinent to anatomy. Prereq: Grad standing in Anatomy, or permission of instructor. Repeatable to a maximum of 8 cr hrs with content change. This course is graded S/U.			
<b>7900</b>	<b>Clinically Oriented Anatomy</b>	<b>G</b>	<b>3</b>
Provides a regionally based clinical approach to the study of human anatomy. Basic anatomy and its correlation with clinical concepts will be examined while an emphasis on clinical associations of disease and assessment techniques will be explored. Prereq: 6900, and Grad standing.			

<b>7999</b>	<b>Master Research in Anatomy</b>	<b>G</b>	<b>1 - 8</b>
Designed to enable the student to conduct an in-depth research investigation in some anatomical field of choice. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs or 20 completions. This course is graded S/U.			
<b>8110</b>	<b>Advanced Studies in Histology</b>	<b>G</b>	<b>2</b>
Discussion of selected topics in histology based on-depth readings of the primary biomedical literature. Sample topics might include: bone and connective tissues, cardiovascular, respiratory tissues. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs.			
<b>8120</b>	<b>Advanced Studies in Embryology</b>	<b>G M</b>	<b>2</b>
Mammalian embryological development using descriptive & experimental studies in variety of vertebrate models to present current information on molecular mechanisms responsible for normal development & birth defect in humans. Anatomy 6600 recommended. Prereq: Grad or professional standing; or medical or dental residency; or advanced undergraduate, and permission of instructor. Repeatable to a maximum of 4 cr hrs.			
<b>8130</b>	<b>Advanced Studies in Neuroanatomy</b>	<b>G M</b>	<b>2</b>
The Advanced Neuroanatomy course is a two hour course that uses short vignettes and journal club learning approaches to the study of human neuroanatomy. Each class meeting will contain an advanced or applied concepts from Human Neuroanatomy (Anatomy 6800). Prereq: 6800 or equiv., and Grad standing; or permission of instructor.			
<b>8140</b>	<b>Advanced Regional Dissection</b>	<b>G</b>	<b>2 - 4</b>
In-depth dissection of one or more regions of the human body, supplemented with literature research. Prereq: 6900 or equiv, and permission of instructor. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>8289</b>	<b>Anatomy Teaching Practicum</b>	<b>G M</b>	<b>1 - 4</b>
A teaching practicum involving direct participation in classroom teaching under the guidance of a faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Anatomy</b>	<b>G</b>	<b>2 - 8</b>
Designed to enable the student to conduct an in depth research investigation in some anatomical field of choice. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs or 20 completions. This course is progress graded (S/U).			

## Animal Sciences

<b>1100</b>	<b>Exploring Animal Sciences</b>	<b>U</b>	<b>½</b>
Basic understanding of animal sciences, academic program policies and procedures, and opportunities for undergraduate professional development.			
<b>2000</b>	<b>Animal Handling</b>	<b>U</b>	<b>2</b>
General introduction to domestic animal behavior and hands-on experience handling food animal species.			
<b>2200.01</b>	<b>Introductory Animal Sciences</b>	<b>U</b>	<b>3</b>
A study of the basic principles of genetics, breeding, reproduction, nutrition, behavior, and biotechnology as it applies to the molecular, cellular, and physical underpinnings of domesticated animal form and function. The online course is not open to students with a declared AnimSci major. Prereq: Not open to students with credit for 2300H. GE nat sci bio course.			
<b>2200.02</b>	<b>Introductory Animal Sciences Laboratory</b>	<b>U</b>	<b>1</b>
Laboratory experience associated with basic principles of genetics, breeding, reproduction, nutrition, behavior, and biotechnology as it applies to the molecular, cellular, and physical underpinnings of domesticated animal form and function. Prereq or concur: 2200.01 or 2300H, or permission of instructor. GE nat sci bio course.			
<b>2200.03</b>	<b>Animal Systems</b>	<b>U</b>	<b>2</b>
Overview of the size and scope of the livestock and companion animal systems, the economic and social impact of the animals and their products, and the structure of the industries.			
<b>2221</b>	<b>Introduction to Equine Studies</b>	<b>U</b>	<b>3</b>
Introduces students to equine studies. Uses of the horse, their economic impact on society, and principles of equine behavior, anatomy, physiology, nutrition, reproduction, and health and disease are emphasized. Prereq: Not open to students with credit for 201.			
<b>2260</b>	<b>Data Analysis and Interpretation for Decision Making</b>	<b>U</b>	<b>3</b>
Introduces students to the use of statistics in data analysis and interpretation. Students develop skills in quantitative literacy and logical reasoning. Prereq: Math 1130, 1148, 1150, or 1151. Not open to students with credit for AEDecon 2205, ComLdr 3537, ENR 2000, HCS 2260, or Stat 1450. GE data any course.			

## 20 Animal Sciences

<b>2300H</b>	<b>Honors Introductory Animal Sciences</b>	<b>U</b>	<b>3</b>
A study of the basic principles of genetics, breeding, reproduction, nutrition, behavior, and biotechnology as it applies to the molecular, cellular, and physical underpinnings of domesticated animal form and function. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2200.01. GE nat sci bio course.			
<b>2301</b>	<b>Equine Behavior and Training</b>	<b>U</b>	<b>3</b>
Introduces students to principles of equine behavior and training techniques and practical application of that knowledge to safely and effectively modify desirable and undesirable behavior of assigned horses. Must have medical insurance. Prereq: Permission of instructor. Not open to students with credit for 271.01. A maximum of 3 credits between 2301 and 2401 may count in the AnimSci major.			
<b>2367</b>	<b>Animals in Society</b>	<b>U</b>	<b>3</b>
Introduction to the historical, social, cultural, economic and legal frameworks within which current human-animal relationships have evolved. Prereq: English 1110 (110) or 111, or equiv. Not open to students with credit for 240. GE writing and comm: level 2 and soc sci indivs and groups course.			
<b>2400.01</b>	<b>Equine Studies in Europe</b>	<b>U</b>	<b>1</b>
First course in a two-course series (2400.01 & 3797.01) designed to give students an appreciation for how world history, government, geography, and infrastructure can impact the equine industry within a society. Prereq: 2200.01 (200), 2221 (201), or 2300H (200H), and permission of instructor. Repeatable to a maximum of 2 cr hrs.			
<b>2400.04</b>	<b>Scotland's Ruminants</b>	<b>U</b>	<b>1</b>
First course in a two-course series (2400.04 & 3797.04) designed to give students an appreciation for how world history, government, geography, and infrastructure can impact the small ruminant production and animal health & welfare within a society. Concur: 3797.04.			
<b>2400.05</b>	<b>Human and Animal Interactions</b>	<b>U</b>	<b>2</b>
Students will expand their understanding of the role that animals play in shaping society, culture, and economics within the US and the non-US destination identified in the 3797.02, 3797.03, or 3797.04. This course has 3 required Saturday field trips. Prereq: Not open to students with credit for 248.			
<b>2400.07</b>	<b>Global Dairy Industries</b>	<b>U</b>	<b>1</b>
An opportunity for students to study the culture; political, economic, and social framework; and dairy industry of another country. This course is offered in conjunction with AnimSci 3797.07 - Dairy Industry Outside the US. Concur: 3797.07. Not open to students with credit for 697.04.			
<b>2401</b>	<b>Advanced Equine Behavior and Training</b>	<b>U</b>	<b>3</b>
Utilizes principles of equine behavior and advanced training techniques to safely and effectively modify desirable and undesirable behavior of assigned horses. Prereq: Permission of instructor. Must have medical insurance. Maximum of 3 credits between 2301 and 2401 may count in the AnimSci major. Repeatable to a maximum of 6 cr hrs.			
<b>2500H</b>	<b>Freshman Research Seminar: Contemporary Animal Biology Research</b>	<b>U</b>	<b>2</b>
Exploration of prominent scientists and emerging issues in animal biology research. Only open to students with 60 cr hrs or fewer. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 299H.			
<b>2507</b>	<b>Challenges and Opportunities for the Dairy Industry</b>	<b>U</b>	<b>1</b>
Increase the understanding by students to the challenges and opportunities within the Ohio and US dairy industries. As the economic climate changes and the consumer demands shift, the dairy industry must respond. Prereq: 2200.01 (200) or 2300H (200H). Not open to students with credit for 347.			
<b>2700</b>	<b>Diverse Fields and Opportunities within Animal Sciences</b>	<b>U</b>	<b>1</b>
Basic understanding of the global trends in animal sciences and the diversity of career opportunities within the industry, in addition to opportunities for undergraduate professional development. Students should plan to complete the course within the first year of enrollment within the major. Prereq or concur: 1100 or MeatSci 1100.			
<b>3000</b>	<b>Puppy Love: Understanding Animal Emotions</b>	<b>U</b>	<b>3</b>
Overview of the science behind animal emotions in livestock and companion animals, including basic introduction to the neurological, physiological, and behavioral indicators of animal emotions.			
<b>3046</b>	<b>Poultry Biology</b>	<b>U</b>	<b>3</b>
This course will introduce students to the poultry industry in a manner that highlights distinctive biological characteristics of poultry species. Students will have a base of knowledge of poultry anatomy and physiology that prepares them for more advanced animal science classes that cover in-depth subjects related to biology of agricultural animals, including poultry. Prereq: 2200.01 or 2200.03.			
<b>3100</b>	<b>Animal Growth and Development</b>	<b>U</b>	<b>3</b>
An overview of growth and development on form and function of food animals and its impact on value. Prereq: 2200.01 or 2300H, and Biology 1113, and Soph standing or above; or permission of instructor.			

<b>3101</b>	<b>Equine Facilities, Marketing, and Management</b>	<b>U</b>	<b>3</b>
Aspects of equine business management, marketing and facility design. Prereq: 2200.01 (200), 2221 (201), or 2300H (200H). Not open to students with credit for 341.			
<b>3110</b>	<b>Introductory Meat Science</b>	<b>U</b>	<b>3</b>
Analysis of the principles of meat science as related to meat animal value factors, processing technology, and merchandising systems affecting the producer, processor, and consumer. Prereq: Biology 1101 or 1113. Not open to students with credit for MeatSci 3110. Cross-listed in MeatSci.			
<b>3130</b>	<b>Principles of Animal Nutrition</b>	<b>U</b>	<b>3</b>
A study of the nutrients, their roles and requirements, digestion and metabolism with an emphasis on domesticated animals maintained for human benefit. Prereq: 2200.01, 2300H, Biology 1113 or 1113H, and Soph standing or above; or permission of instructor.			
<b>3131</b>	<b>Equine Feeds and Feeding</b>	<b>U</b>	<b>3</b>
Focuses on the nutrient needs of the horse and the significance of supplements and feeds as they relate to the horse's nutrition and health. Prereq: 2200.01 (200), 2221 (201), or 2300H (200H). Not open to students with credit for 331.			
<b>3133</b>	<b>Principles of Feeds and Feeding</b>	<b>U</b>	<b>2</b>
A study of the chemical composition of feedstuffs and the application toward providing optimal nutrition to managed animals. Prereq: 3130.			
<b>3140</b>	<b>Principles of Animal Systems Physiology</b>	<b>U</b>	<b>3</b>
An introductory course that surveys organs/systems within the body and relates the functional physiology of those systems to animal production. Prereq: Biology 1101 (101), 1113 (113), or 1113H (115H). Not open to students with credit for 310. GE nat sci bio course.			
<b>3140E</b>	<b>Principles of Animal Systems Physiology</b>	<b>U</b>	<b>3</b>
An introductory course that surveys organs/systems within the body and relates the functional physiology of those systems to animal production. Prereq: Honors standing, and Biology 1101, 1113, or 1113H; or permission of instructor. Not open to students with credit for 3140 or 3140H. GE nat sci bio course.			
<b>3147</b>	<b>Milk Secretion</b>	<b>U</b>	<b>2</b>
Introduction to mammary gland anatomy, milk synthesis, and factors affecting mammary health. Prereq: 2200.01 or 2300H, and Biology 1113 or 1113H.			
<b>3150</b>	<b>Principles of Genetic Improvement</b>	<b>U</b>	<b>3</b>
Introduction to the methods available for bringing about genetic change in animals. Prereq: 2200.01 (200) and 2200.02, or 2300H (200H); and 2260 (260), HCS 2260 (260), Stat 1450 (145), AEDEcon 2005 (205), ComLdr 3537, or AEE 387. Not open to students with credit for 320.			
<b>3160</b>	<b>Reproductive Physiology</b>	<b>U</b>	<b>3</b>
Introduction to anatomy and physiology of reproductive systems of various species with a focus on agricultural species. 3140 (310) or 3140H (310H) is recommended. Prereq: 2200.01 (200) or 2300H (200H), and Soph standing or above. Not open to students with credit for 318.			
<b>3170</b>	<b>Animal Health I</b>	<b>U</b>	<b>2</b>
Provides students with an introduction to principles of animal health and emphasizes management practices that influence host-pathogen interactions. 3140 or 3140E is recommended. Prereq: 2200.01 or 2300H, and Soph standing or above.			
<b>3171</b>	<b>Equine Health &amp; Disease</b>	<b>U</b>	<b>2</b>
Introduction to infectious disease affecting horses with emphasis on management practices that influence host-pathogen interactions. Prereq: 2200.01 (200), 2221 (201), or 2300H (200H).			
<b>3191</b>	<b>Internship in Animal Sciences</b>	<b>U</b>	<b>2</b>
Supervised preplanned employment experience and/or on-site problem solving study program. Prereq: Permission of academic advisor. Prereq or concur: FAES 3191. This course is graded S/U. Cross-listed in MeatSci.			
<b>3200</b>	<b>Applied Animal Bioscience Laboratory</b>	<b>U</b>	<b>2</b>
Laboratory experience exploring the organs, tissues and cells associated with the physiological systems of domestic animals and the nutrients used to support these systems. Prereq: 3130; and 3140, 3140E, AnmlTec 3140T, or EEOB 2520; and 3160. Prereq or concur: 3170 or AnmlTec 3170T.			
<b>3270</b>	<b>Animal Health II</b>	<b>U</b>	<b>2</b>
Introduction to principles of immunology and emphasis on management practices that influence host immune responses. Prereq or concur: 3170.			
<b>3300</b>	<b>Livestock Selection and Evaluation</b>	<b>U</b>	<b>3</b>
Laboratory exercises employing current standards of animal excellence including carcass value for the selection and improvement of farm livestock. Prereq: 3100, or Jr standing or above, or permission of instructor. Not open to students with credit for 300.			

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<b>3301</b>	<b>Equine Selection and Evaluation</b>	<b>U</b>	<b>2</b>
Emphasis on the relationship of form to function by evaluating conformation and performance and orally defending that evaluation. Prereq: 2200.01 (200), 2221 (201), or 2300H (200H), or permission of instructor. Not open to students with credit for 301.			
<b>3306</b>	<b>Poultry Selection and Evaluation</b>	<b>U</b>	<b>2</b>
This course will provide students the opportunity to learn about the principles of poultry science; the evaluation and ranking of standard breeds of chickens; and the evaluation and grading of poultry meat and egg products. In addition, the course will cover practical and safe handling techniques of live poultry. Prereq: Soph standing or above, or permission of instructor.			
<b>3307</b>	<b>Dairy Cattle Selection and Evaluation</b>	<b>U</b>	<b>2</b>
Use of functional type traits in evaluation and selection of dairy cattle. Prereq: Soph standing or above, or permission of instructor. Not open to students with credit for 207.			
<b>3400</b>	<b>Management Intensive Grazing</b>	<b>U</b>	<b>2</b>
Application of scientific principles of plant growth, animal nutrition and behavior to manage grazing systems for profitable, sustainable livestock enterprises.			
<b>3488</b>	<b>Professional Development in Animal Sciences</b>	<b>U</b>	<b>1 - 2</b>
Participation in structured co-curricular programs leading to professional development (e.g. Academic Quadrathlon, Livestock Selection and Evaluation Teams, etc.). Prereq: CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>3500</b>	<b>Professional Networking in Animal Sciences</b>	<b>U</b>	<b>2</b>
Professional networking and exposure to the breadth of the animal industries in Ohio and the potential for career development.			
<b>3600</b>	<b>Global Food and Agriculture</b>	<b>U</b>	<b>3</b>
The integration of food, agriculture, environment, resources, technology, culture, and trade on a global scale. Prereq: Not open to students with credit for 360.			
<b>3600E</b>	<b>Global Food and Agriculture</b>	<b>U</b>	<b>3</b>
The integration of food, agriculture, environment, resources, technology, culture, and trade on a global scale. Prereq: Honors standing. Not open to students with credit for 360 or 360E.			
<b>3700</b>	<b>Animal Research Methods Laboratory</b>	<b>U</b>	<b>2</b>
Exploring research techniques associated with food animal tissues such as quantifying, separating and identifying proteins, fatty acids and carbohydrates. Prereq: 3140 (310), 3140H (310H), or MeatSci 3110 (AnimSci 355.01), or permission of instructor.			
<b>3797.01</b>	<b>Equine Studies in Europe</b>	<b>U</b>	<b>3</b>
The study abroad experience will allow the students to be surrounded with a different culture, geography, community/government infrastructure, and history to directly compare how those aspects shape and impact the equine industry in that society. Prereq: 2200.01, 2221, or 2300H. Prereq or concur: 2400.01. Repeatable to a maximum of 6 cr hrs.			
<b>3797.03</b>	<b>Human and Animal Interactions Study Abroad</b>	<b>U</b>	<b>3</b>
Experience the beliefs and views of the culture in destination countries on the use and involvements of animals as part of their daily lives. Prereq or concur: 2400.05. Repeatable to a maximum of 9 cr hrs.			
<b>3797.04</b>	<b>Scotland's Ruminants - Education Abroad</b>	<b>U</b>	<b>3</b>
Second course in a two-course series (2400.04 & 3797.04) designed to give students an appreciation for the heritage, production, health and well-being of Scotland's ruminant species and explore how world history, government, geography, and infrastructure can impact the management of animals within the Scottish society. Concur: 2400.04.			
<b>3797.07</b>	<b>Dairy Industry Outside the U.S.</b>	<b>U</b>	<b>3</b>
Increase the understanding of undergraduate students to the global nature of the dairy industry, comparing the demographics, cultural and economic forces, and natural resource availability on dairy farming and milk processing in a global setting. Prereq or concur: 2400.07.			
<b>4001</b>	<b>Equine Production and Management</b>	<b>U</b>	<b>4</b>
Application of scientific principles and best management practices in the areas of anatomy, physiology, genetics, reproduction, nutrition and health to the production of horses. Prereq: 3130 or 3131. Not open to students with credit for 541.			
<b>4002.01</b>	<b>Beef Cattle Production and Management</b>	<b>U</b>	<b>3</b>
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle. Prereq: 3130, and 3140 or 3140E, and 3150. Prereq or concur: 3160, 3170, and 3200.			
<b>4002.02</b>	<b>Beef Cattle Production Lab</b>	<b>U</b>	<b>1</b>
Hands-on application of the science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle. Concur: 4002.01.			

<b>4003.01</b>	<b>Swine Production</b>	<b>U</b>	<b>3</b>
Application of science and basic principles of nutrition, physiology, genetics, health, economics, meats, and housing in integrated management systems for modern swine production. Prereq: 3130 and 3140; or 3140E and 3150. Prereq or concur: 3160, 3170, and 3200.			
<b>4003.02</b>	<b>Swine Production Lab</b>	<b>U</b>	<b>1</b>
Hands-on application of scientific and basic principles of nutrition, genetics, physiology, health, economics, meat products and housing in integrated management systems for modern swine production. Concur: 4003.01.			
<b>4004.01</b>	<b>Small Ruminant and Pseudo Ruminant (Sheep, Goat, Llama, Alpaca, &amp; Deer) Production and Management</b>	<b>U</b>	<b>3</b>
Application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of small ruminants. Prereq: 3130, and 3140 or 3140E, and 3150. Prereq or concur: 3160, 3170, and 3200.			
<b>4004.02</b>	<b>Small Ruminant Production Lab</b>	<b>U</b>	<b>1</b>
Hands-on application of the science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of small ruminants. Concur: 4004.01.			
<b>4005</b>	<b>Companion Animal Biology and Behavior</b>	<b>U</b>	<b>4</b>
Anatomy, genetics, nutrition, physiology and behavior of dogs and cats. Human-animal companion relationships. Prereq: 3130 (330), and 3140 (310) or 3140H (310H), and 3150 (320). Prereq or concur: 3160 (318), 3170 (413), and 3200. Not open to students with credit for 545.			
<b>4006.01</b>	<b>Poultry and Avian Management</b>	<b>U</b>	<b>3</b>
Describes classes of poultry and game birds, incubation, housing, anatomy, diseases, genetics and nutrition. Prereq: 3130, and 3140 or 3140E, and 3150. Prereq or concur: 3160, 3170, and 3200.			
<b>4006.02</b>	<b>Poultry and Avian Management Lab</b>	<b>U</b>	<b>1</b>
Hands-on application of nutrition, genetics, physiology, health, economics, products and housing in integrated management systems for the raising of chickens for market and egg production. Concur: 4006.01.			
<b>4007</b>	<b>Dairy Herd Management</b>	<b>U</b>	<b>4</b>
Application of scientific principles to practical herd management, analyses of alternatives and decision making. Prereq: 2200.01, and 3130 (330) or 3147 (317). Not open to students with credit for 547.			
<b>4105</b>	<b>Domestication, Form, and Function of Dogs</b>	<b>U</b>	<b>3</b>
A study of the events that have shaped the domestic dog. Includes a focus on the role of domestication, selective breeding, and factors impacting growth and development on form and function of the domestic dog. Prereq: 3140, and Soph standing or above; or permission of instructor.			
<b>4189</b>	<b>Field Experience or Field Work</b>	<b>U</b>	<b>3</b>
Supervised career-related work experience where students are temporarily employed by an organization and put into practice the skills, techniques and knowledge that are important for success in the industry. Prereq: 3130 (330), and 3140 (310) or 3140H (310H), and 3150 (320), and permission of instructor. Prereq or concur: 3160 (318), 3170 (413), and 3200. Repeatable to a maximum of 6 cr hrs.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>0 - 3</b>
Special assignments and advanced research; problems assigned after consultation with the instructor in charge. Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Special topics area group studies finally proposed for a specific semester by an animal science faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4400</b>	<b>Animal Welfare and Behavior in Livestock Industries</b>	<b>U</b>	<b>3</b>
The study of animal welfare and behavior and resulting influences on livestock production systems. Prereq: 3140 (310) or 3140H (310H), or permission of instructor.			
<b>4597</b>	<b>Contemporary Animal Use Issues</b>	<b>U</b>	<b>3</b>
The historical, biological, ethical, nutritional and economic issues of using animals to meet human needs. Prereq: Jr or Sr standing. Not open to students with credit for 597. GE cross-disciplinary seminar course.			
<b>4797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 15</b>
Study at a foreign institution. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 15 completions.			



## 22 Animal Sciences

<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>0 - 6</b>
Conducting and reporting research with distinction. Prereq: CPHR 3.0 overall, and GPA 3.0 or above in major, and permission of project supervisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Research with Distinction</b>	<b>U</b>	<b>0 - 6</b>
Conducting and reporting research with distinction. Prereq: Honors standing, FAES 1100H, CPHR 3.4 or above, major GPA 3.4 or above, and permission of honors project supervisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>5000</b>	<b>Human Dimension in Animal Sciences</b>	<b>U G</b>	<b>3</b>
Examines how humans have and continue to influence the field of Animal Sciences. Students will gain a perspective on both individual and societal actions and reactions to aspects of animal production for human consumption. Topics will include, but will not be limited to: attitudes, beliefs, values, and value orientations.			
<b>5031</b>	<b>Ruminant Nutrition</b>	<b>U G</b>	<b>3</b>
Principles of ruminant nutrition: nutrients, metabolism and physiology. Includes computer formulations and feeding strategies for nutritional management of ruminants. Prereq: 3130 (330), or Grad standing. Not open to students with credit for 630.01.			
<b>5032</b>	<b>Non-Ruminant Nutrition</b>	<b>U G</b>	<b>3</b>
Principles of nonruminant nutrition: nutrients, metabolism and physiology. Includes practical feeding strategies for nonruminant animals. Prereq: 3130 (330), or Grad standing. Not open to students with credit for 630.02.			
<b>5033</b>	<b>Feeding Management and Records Analysis for Dairy Cattle</b>	<b>U G</b>	<b>3</b>
Stimulates student awareness of unique nutrient metabolism systems and strategies that have evolved to meet nutrient requirements to support various animal production situations. Prereq: 3130 (330), or Grad standing, or permission of instructor. Not open to students with credit for 630.03.			
<b>5070</b>	<b>Nutritional Immunology in Animal Systems</b>	<b>U G</b>	<b>3</b>
Principles of the role of nutrients in modifying the immune responses of animals and nutrient contributions toward animal health and well-being. Prereq: 3130 (330) or HumnNtr 2310 (310), or Grad standing. Not open to students with credit for 638.			
<b>5090</b>	<b>Gut Microbiology</b>	<b>U G</b>	<b>2</b>
A study of the major microorganisms of the gastrointestinal tract of animals and humans, their microbial metabolism and functions, interactions with each other and with hosts, and impact on host nutrition and health. Prereq: Micrbio 4000.01 or 4000.02 or 4100, and Biochem 4511, and GPA 2.0 or above in Biochem and Micrbio coursework; or permission of instructor.			
<b>5100</b>	<b>Advanced Growth and Development</b>	<b>U G</b>	<b>3</b>
A molecular developmental approach to the study of tissue growth, structure, and function in animals and humans. Prereq: 9 cr hrs in 3000-level or above AnimSci course, and Jr standing or above, or Grad standing. Not open to students with credit for 400 or 618.			
<b>5131</b>	<b>Application of Nutritional Principles to Ruminant Production Systems</b>	<b>U G</b>	<b>3</b>
Principles of ruminant production, health, ruminant digestion, metabolism, physiology, nutrient requirements, behavior, growth and lactation in the production of meat and milk from ruminants. Prereq: 4002, 4004, or 4007; or Grad standing; or permission of instructor.			
<b>5310</b>	<b>Auditing Animal Production and Processing Facilities</b>	<b>U G</b>	<b>2</b>
Introduces multiple types of auditing tools currently used by the industry to evaluate best management practices and animal welfare in the production and processing of various food animal species. Prereq: 3110 or MeatSci 3110. Cross-listed in MeatSci.			
<b>5400.01</b>	<b>Southern African Animals: I</b>	<b>U G</b>	<b>2</b>
First in a two part series covering the physiology, behavior, and human interactions with various animals found in Southern Africa, establishing an appreciation of the daily struggles of animals and people in this geographic area.			
<b>5400.02</b>	<b>Southern African Animals: II</b>	<b>U G</b>	<b>2</b>
Second of a two-part series covering the physiology, behavior, and human interactions with various animals found in Southern Africa, establishing an appreciation of the daily struggles of animals and people in this geographic area.			
<b>5410</b>	<b>Food Animal Production and Processing Industry Tour</b>	<b>U G</b>	<b>2</b>
Includes travel to food animal production and processing facilities for students to gain first hand knowledge in commercial food animal production and processing. Prereq: 3110 or MeatSci 3110. Cross-listed in MeatSci.			
<b>5530</b>	<b>Comparative Animal Nutrient Metabolism</b>	<b>U G</b>	<b>3</b>
Principles of nutrient metabolism as influenced by anatomical evolution and diet selection. Includes comprehensive discussions of nutrient handling in domesticated, captive and wild animal populations. Prereq: 3130 (330) or HumnNtr 2310 (310), and Biochem 4511 (511).			

<b>5551</b>	<b>Equine Assisted Activities and Therapies</b>	<b>U G</b>	<b>2</b>
A variety of approaches, therapeutic settings and client populations will be addressed with an emphasis on equine behavior and body language. Students will gain experience in the development and practical application of an equine assisted therapy program.			
<b>5797.01</b>	<b>Welfare of Agricultural and Recreational Animals</b>	<b>U G</b>	<b>3</b>
This course is part of the long-term study abroad program in Australia. It investigates the role of animal welfare in production and recreational animals and how animal welfare issues will impact the future of global food animal agriculture. Prereq: 3130 (330), and 3140 (310) or 3140H (310H), and 3150 (320), and permission of instructor. Not open to students with credit for 697.01.			
<b>5797.02</b>	<b>Animal Production Systems in Diverse Environments in Australia</b>	<b>U G</b>	<b>3</b>
Part of the long-term study abroad program in Australia. It will investigate animal production systems including: comparing production practices, economic issues and environmental constraints between Australia and the United States. Prereq: 3130 (330), and 3140 (310) or 3140H (310H), and 3150 (320), and permission of instructor. Not open to students with credit for 697.02.			
<b>5797.03</b>	<b>History, Culture and Economies of Australia</b>	<b>U G</b>	<b>3</b>
Introduces students to key social, political and economic issues that have shaped Australia to its contemporary identity and to investigate issues of exploration, economic development, social and community standards and processes. Prereq: Permission of instructor.			
<b>5797.05</b>	<b>Exotic Animal Behavior and Welfare</b>	<b>U G</b>	<b>3</b>
Exposes students to behavior, welfare, and health conditions of food production and exotic animals found in South Africa. This is a short-term study abroad course that will include visits to a range of animal systems: intensive production, open-range, semi-contained, sanctuaries, and zoo settings. The class activities take place primarily in field settings. Prereq: 5400.01.			
<b>5810</b>	<b>Branded Meat Products</b>	<b>U G</b>	<b>4</b>
Integration of multiple factors influencing value-added product development including: raw material quality and procurement, processing, packaging, distribution, and complexity of market development and current consumer trends in niche marketing. Prereq: 3110, 355.01, or MeatSci 3110; and completion of a second writing course. Not open to students with credit for 555.03 or MeatSci 5810. Cross-listed in MeatSci.			
<b>6000</b>	<b>Introduction to Graduate Studies in Animal Sciences</b>	<b>G</b>	<b>1</b>
An introduction to the Animal Sciences discipline and the scholarly activities required to pursue a graduate studies in the field. Prereq: Grad standing.			
<b>6060</b>	<b>Advanced Reproductive Physiology</b>	<b>G</b>	<b>3</b>
Recent advances in research in mammalian reproduction. Prereq: 3160 (318), or Grad standing, or permission of instructor. Not open to students with credit for 610 or 710.			
<b>6100</b>	<b>Research Methods and Writing in Animal Sciences</b>	<b>G</b>	<b>1</b>
Emphasis on the literature of science, design of a problem, methods and techniques for investigation and scientific writing. Prereq: Grad standing.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 6</b>
Special assignments and advanced research problems assigned. Repeatable to a maximum of 10 cr hrs or 6 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Special topics area group studies. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>7000</b>	<b>Applied Biometrics</b>	<b>G</b>	<b>4</b>
Study methods used in the quantification of biological processes and the integration of research results and knowledge into quantitative methods. Prereq: Stat 5301 or equiv, or permission of instructor.			
<b>7030</b>	<b>Advanced Topics in Ruminant Nutrition</b>	<b>G</b>	<b>3</b>
Advanced aspects of ruminant digestion, microbial fermentation, absorption, metabolism, physiology and the integration of these processes into rationing approaches will be emphasized, building on principles of ruminant nutrition from past courses. Prereq: 5031 (630.01) or equiv, or Biochem 4511 (511), or permission of instructor. Not open to students with credit for 730.			
<b>7040</b>	<b>Animal Physiology I</b>	<b>G</b>	<b>3</b>
This course will explore the physiology of neuronal, muscular, endocrine, & reproductive tissues at systemic, cellular, & molecular levels with a focus on domestic mammals. Human physiology will be presented at times to expand upon limited information available for animals. Prereq: Grad standing, or permission of instructor.			
<b>7100</b>	<b>Animal Growth and Development</b>	<b>G</b>	<b>3</b>
Addresses the advanced principles of animal growth and development as the food animal industries continue to emphasize more efficient growth rates and acceptable meat quality. Specific information will be focused on the structure and function of muscle, bone, and adipose tissues, and the interaction among nutrition, hormones, exercise, heredity and disease. Prereq: 3100, 3105, or permission of instructor.			

<b>7640</b>	<b>Food Carbohydrates and Proteins</b>	<b>G</b>	<b>3</b>
Chemical, physical, biological and functional properties of food carbohydrates and proteins and their interactions with other food components. Prereq: FdScTe 5600 (605) and Biochem 4511 (511), or permission of instructor. Not open to students with credit for FdScTe 822 or 823. Cross-listed in FdScTe.			
<b>7724</b>	<b>Contemporary Issues in Animal Welfare</b>	<b>G</b>	<b>1</b>
Give students the opportunity to explore current issues in animal welfare through reading, presentations and discussion. Prereq: 4400 or VMcoll 6565, or permission of instructor. Cross-listed in VetPrev.			
<b>7730</b>	<b>Endocrinology</b>	<b>G</b>	<b>4</b>
Functional principles of the major endocrine systems in vertebrates and preparation for research in this area. Prereq: Biochem 4511, or permission of instructor. Not open to students with credit for Kinesio 7730. Cross-listed in Kinesio.			
<b>7761</b>	<b>Macronutrient Metabolism</b>	<b>G</b>	<b>4</b>
In-depth treatment of digestion, absorption, transport, and utilization of dietary carbohydrates and fat for energy production and fat deposition in humans and other higher animals. Prereq: 3130 (330), HumnNtr 2310 (310), or Biochem 4511 (511). Not open to students with credit for 761, 762, HumnNtr 7761 (761 and 762), or FdScTe 7761 (761 and 762). Cross-listed in FdScTe and HumnNtr.			
<b>7762</b>	<b>Vitamin and Mineral Metabolism</b>	<b>G</b>	<b>4</b>
Biochemical functions, absorptions, transport, utilization, interrelationships and nutritional requirements of selective vitamins and minerals in higher vertebrates and humans. Prereq: Coursework in Biochemistry or Vertebrate Physiology. Not open to students with credit for FdScTe 7762 or HumnNtr 7762. Cross-listed in FdScTe or HumnNtr.			
<b>7789</b>	<b>Nutrition Research Ethics</b>	<b>G</b>	<b>1</b>
Exploring critical aspects in conducting research, including ethical considerations, authorship, conflicts of interests, and intellectual property rights. Prereq: Grad standing. Not open to students with credit for HumnNtr 7789. Cross-listed in HumnNtr.			
<b>7790</b>	<b>Animal Models and Mechanistic Research Design</b>	<b>G</b>	<b>1</b>
The course will provide fundamental principles in establishing effective research hypotheses, aims, and design strategies for mechanistic and applied research using animals and animal models. A focus on research protocols, outcomes, inferences, and reporting will be developed and reinforced through student evaluation of primary literature and student interactions. Prereq: 7789 or HumnNtr 7789. Not open to students with credit for HumnNtr 7790. Cross-listed in HumnNtr.			
<b>7899</b>	<b>Oral Research Communication</b>	<b>G</b>	<b>1</b>
Critical analysis of the scientific literature and demonstration of effective oral presentation skills tailored to the target audience, with use of information technologies as needed. Prereq: Grad standing. Not open to students with credit for FdScTe 7899 or HumnNtr 7899 (895). Cross-listed in FdScTe and HumnNtr.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis purposes for students pursuing a MS degree. Prereq: MS Grad student standing in Animal Sciences, or permission of instructor. Repeatable. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 10</b>
Exploratory research and advanced assignments. Prereq: Grad standing, and permission of instructor. This course is graded S/U.			
<b>8780</b>	<b>Molecular Biology Techniques</b>	<b>G</b>	<b>3</b>
Demonstrates the applications of molecular biology by involving the students in a real time research project. Students will perform experiments using molecular biology techniques in the context of a muscle protein functionality study. Prereq: Grad standing, or permission of instructor.			
<b>8801</b>	<b>Macronutrients - Lipids and Energy Balance</b>	<b>G</b>	<b>3</b>
Discussion of lipids as storage molecules used for energy and metabolism modulation as well as how they influence energy balance conditions such as obesity, cachexia, weight loss and weight gain. Prereq: 7761 (761), FdScTe 7761 (761), or HumnNtr 7761 (761). Not open to students with credit for 830.01, FdScTe 8801 (830.01), or HumnNtr 8801 (830.01). Cross-listed in FdScTe and HumnNtr.			
<b>8802</b>	<b>Advanced Micronutrient Metabolism</b>	<b>G</b>	<b>3</b>
Comparative study of the regulation of micronutrient status and its influence on physiological and molecular events, including nuclear receptor activity and transcription. Prereq: 7762 (762), FdScTe 7762 (762), or HumnNtr 7762 (762). Not open to students with credit for 830.02, FdScTe 8802 (830.02), or HumnNtr 8802 (830.02). Cross-listed in FdScTe and HumnNtr.			
<b>8833</b>	<b>Diet, Nutrition and Cancer</b>	<b>G</b>	<b>3</b>
Epidemiological, clinical and basic perspective of how diet and nutrition practices predict for cancer risk. Prereq: 7761 (761), FoodSci 7761 (761), or HumnNtr 7761 (761). Not open to students with credit for 830.12, HumnNtr 8833 (830.12), or FdScTe 8833 (830.12). Cross-listed in FdScTe and HumnNtr.			

<b>8834</b>	<b>Comprehensive Approach to Food Safety</b>	<b>G</b>	<b>2</b>
A comprehensive overview of food safety challenges and solutions as experienced through the food chain from farm to consumers. Demonstration of food safety system from cellular aspects through public policy. Prereq: Micrbio 509 or equiv. Not open to students with credit for 830.10, FdScTe 8834 (830.10), or HumnNtr 8834 (830.10). Cross-listed in FdScTe and HumnNtr.			
<b>8835</b>	<b>Grantsmanship</b>	<b>G</b>	<b>1</b>
Capstone course for the OSUN PhD program will train students on grantsmanship skills. Prereq: Grad standing. Not open to students with credit for FdScTe 8835 or HumnNtr 8835. Cross-listed in FdScTe and HumnNtr.			
<b>8836</b>	<b>Advanced Nutritional Genomics</b>	<b>G</b>	<b>3</b>
The primary goal of the course is to stimulate critical thinking and discussion among graduate students about current research findings in the areas of genomics, proteomics and metabolomics as they apply to studies in the nutritional sciences. Prereq: 7761 and 7762; or HumnNtr 7761 and 7762. Cross-listed in HumnNtr.			
<b>8880</b>	<b>Interdisciplinary Seminar</b>	<b>G</b>	<b>1</b>
Discussions of current animal science research. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8881</b>	<b>General Seminar</b>	<b>G</b>	<b>1</b>
Discussions of current animal science research. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.			
<b>8882</b>	<b>Nutrition Seminar</b>	<b>G</b>	<b>1</b>
Discussions of current nutrition research. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is progress graded (S/U).			
<b>8883</b>	<b>Physiology Seminar</b>	<b>G</b>	<b>1</b>
Discussion of current animal physiology research. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8885</b>	<b>Animal Products Seminar</b>	<b>G</b>	<b>1</b>
Discussions of current animal production and animal products research. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8888</b>	<b>OSUN Research Seminar</b>	<b>G</b>	<b>1</b>
Recent advances in nutrition science are presented by locally, nationally and internationally recognized scientists. Prereq: Grad standing. Not open to students with credit for FdScTe 8888 or HumnNtr 8888. Repeatable to a maximum of 5 cr hrs. This course is graded S/U. Cross-listed in FdScTe and HumnNtr.			
<b>8997</b>	<b>Graduate Writing Experience in Animal Sciences: Non-Thesis</b>	<b>G</b>	<b>3</b>
Writing for non-thesis MS students in Animal Sciences. Prereq: Grad standing, and permission of instructor. Only available to students obtaining a non-thesis MAS in Animal Sciences. This course is graded S/U.			
<b>8998</b>	<b>Pre-Candidacy Dissertation Research</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes for students having yet to complete the candidacy exam. Prereq: PhD Grad student standing in Animal Sciences prior to completion of candidacy exam, or permission of instructor. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes for students having completed the candidacy exam. Prereq: PhD Grad student standing in Animal Sciences and completion of candidacy exam, or permission of instructor. Repeatable. This course is graded S/U.			

## Animal Sciences Technology

<b>1201.01T</b>	<b>Exploring Equine Careers and Industry</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>1201.02T</b>	<b>Exploring Livestock Careers and Industry</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>1201.07T</b>	<b>Exploring Dairy Careers and Industry</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>1201.08T</b>	<b>Exploring Animal Health Careers</b>	<b>U</b>	<b>½</b>
Provides an overview of the unique requirements of the Animal Health specialization, promotes student success in college, and explores personal and career interests, needs, goals, in the field of Animal Health.			

## 24 Animal Sciences Technology

<b>2189.01T Horse Practicum</b>	<b>U</b>	<b>1</b>
Practical experience in supervised equine laboratories with emphasis on developing and improving competencies related to classroom objectives and horse industry standards. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.		
<b>2189.07T Practicum in Dairy Cattle Production</b>	<b>U</b>	<b>1 - 2</b>
Supervised practical experience in dairy cattle production at the Ohio State ATI dairy farm with emphasis on developing and improving dairy cattle production skills and competencies. A grade of C or better required to meet graduation requirements. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs or 4 completions.		
<b>2190.01T Leadership in Equine Operations Management</b>	<b>U</b>	<b>1</b>
Practical, supervised leadership experience in equine facility management with emphasis on herd and facility operations and personnel supervision. A grade of C or better required to meet graduation requirements. Prerequisite: Completion of tractor/mobile equipment safety certification process required. Prereq: 2189.01T (289.04T) with a grade of C or above; 2201T (211T). Repeatable to a maximum of 2 cr hrs.		
<b>2193T Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.		
<b>2194T Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.		
<b>2200.02T Introduction to Animal Sciences Laboratory</b>	<b>U</b>	<b>1</b>
Laboratory application of basic animal husbandry practices in the various livestock and related industries. Prereq or concur: 2200T or AnimSci 2200.01. This course is available for EM credit.		
<b>2200T Introduction to Animal Sciences</b>	<b>U</b>	<b>3</b>
Introduction to animal agriculture; its purpose, terms, products, problems, and basic management principles. Prereq: Not open to students with credit for 210T or AnimSci 200. This course is available for EM credit.		
<b>2201T Introduction to Horse Science</b>	<b>U</b>	<b>3</b>
Fundamental survey of the development of domestic horses and breeds, terminology, behavior, uses, conformation, management and safe horse handling. Prereq: Not open to students with credit for 211T. This course is available for EM credit.		
<b>2202T Introduction to Beef and Small Ruminant Production</b>	<b>U</b>	<b>3</b>
Overview of beef cattle, sheep, goat, and other small ruminant species industries with regard to production and marketing; focus on ruminant livestock needs and the opportunities involved in their production. Prereq: Not open to students with credit for 222.01T. This course is available for EM credit.		
<b>2510.02T Food Animal Resource Management I - Beef</b>	<b>U</b>	<b>1</b>
Supervised practical experience in beef production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving beef production and management skills and competency. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.		
<b>2510.03T Food Animal Resource Management I - Swine</b>	<b>U</b>	<b>1</b>
Supervised practical experience in swine production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving swine production and management skills and competency. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.		
<b>2510.04T Food Animal Resource Management I - Small Ruminants</b>	<b>U</b>	<b>1</b>
Supervised practical experience in small ruminant production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving small ruminant production and management skills and competency. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.		
<b>2582.02T Food Animal Resource Management II - Beef</b>	<b>U</b>	<b>1</b>
Supervised practical experience in beef production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving leadership characteristics, beef production and management skills and competency. A grade of C or better required to meet graduation requirements. Prereq: 2510.02T. Repeatable to a maximum of 4 cr hrs.		
<b>2582.03T Food Animal Resource Management II - Swine</b>	<b>U</b>	<b>1</b>
Supervised practical experience in swine production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving leadership characteristics, swine production and management skills and competency. A grade of C or better required to meet graduation requirements. Prereq: 2510.03T. Repeatable to a maximum of 4 cr hrs.		

<b>2582.04T Food Animal Resource Management II - Small Ruminants</b>	<b>U</b>	<b>1</b>
Supervised practical experience in small ruminant production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving leadership characteristics, small ruminant production and management skills and competency. A grade of C or better required to meet graduation requirements. Prereq: 2510.04T. Repeatable to a maximum of 4 cr hrs.		
<b>2603T Swine Production and Management I</b>	<b>U</b>	<b>3</b>
A study of the basic principles of production and management for contemporary commercial swine production enterprises. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees. Prereq: Not open to students with credit for 222.02T. This course is available for EM credit.		
<b>2707T Dairy Cattle Presentation</b>	<b>U</b>	<b>1</b>
Principles and skills practiced in fitting, presenting, and merchandising dairy cattle. Course offered in even numbered years. Field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees. Prereq: Not open to students with credit for 206T. This course is available for EM credit.		
<b>2787T Applied Dairy Herd Practices and Management</b>	<b>U</b>	<b>1</b>
Experience in applying, directing, and evaluating dairy herd management procedures and practices at the Ohio State ATI dairy farm. A grade of C or better required to meet graduation requirements. Completion of the Equipment Training and Certification process and a driver background check required. Prereq: Soph standing; permission of instructor. Repeatable to a maximum of 3 cr hrs.		
<b>2797T Dairy Industry Seminar and Experience</b>	<b>U</b>	<b>1</b>
Current trends, issues, technology, and developments in the dairy industry; emphasis on developing lifelong learning skills through evaluation of science/trade journals, participation in professional meetings, and visits to innovative businesses. 1 to 3 day field trips, including weekends, may be required. Students pay field trip costs of lodging, meals, etc. above Ohio State tuition and fees. Prereq: Permission of instructor. Prereq or concur: English 1110.01 or 1110.03. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.		
<b>2800T Basic Horsemanship</b>	<b>U</b>	<b>2</b>
Study of equine behavior, applied safe horse handling techniques, and an introduction into basic training and handling methodologies. Prereq or concur: 2201T. Not open to students with credit for 2801T or 2811T.		
<b>2801T Horsemanship and Equitation</b>	<b>U</b>	<b>3</b>
Intermediate course in equitation with emphasis on continued development of balanced seat riding skills that incorporate natural horsemanship concepts into mounted work. Students should have riding proficiency at walk, trot, and canter. Prereq: Permission of instructor. Concur: 2189.01T or 2190.01T. Not open to students with credit for 213T. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.		
<b>2811T Schooling and Training the Riding Horse</b>	<b>U</b>	<b>3</b>
Applied techniques of schooling and training riding horses with emphasis on producing supple, willing and knowledgeable mounts. Prereq: 2201T (211T), 2801T (267T), permission of instructor. Concur: 2189.01T or 2190.01T. Not open to students with credit for 268.01T.		
<b>3101.01T Equine Marketing</b>	<b>U</b>	<b>1</b>
Students will gain experience in sale prepping horses and develop an understanding of equine sales industry practices. Students will develop promotional materials including ads and videos. Prereq: 2201T and 2189.01T.		
<b>3101.02T Equine Facility Management</b>	<b>U</b>	<b>3</b>
This course explores equine facility design, management, and business planning. Students will locate and use resources to develop a business plan and manage an event. The event is typically on a Saturday. Prereq: 2201T and 2189.01T. This course is available for EM credit.		
<b>3130T Principles of Animal Nutrition</b>	<b>U</b>	<b>2</b>
A study of the nutrients and the basic principles involved in the feeding of domestic animals, including the characteristics/composition of feedstuffs and factors that affect feed utilization. Recommended prereq: 2200T or 3140T; GenBiol 1200T (120T) or Biology 1113 (113). Prereq: Not open to students with credit for 214T or 240T. This course is available for EM credit.		
<b>3131T Equine Feeding and Nutrition</b>	<b>U</b>	<b>3</b>
A study of the nutritional needs of equids and of the principles and practices involved in providing balanced rations to different nutritional classes of equids. Prereq: 2201T or AnimSci 2200.01; GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.		
<b>3132T Ruminant Feeds and Feeding</b>	<b>U</b>	<b>3</b>
Principles of beef cattle and small ruminant nutrient requirements and feeding management with emphasis on the critical evaluation and formulation of rations in current management situations. Prereq: 2202T or AnimSci 2200.01; GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.		

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**3133T Practical Swine Feeding** **U 3**

A study of the basic nutritional requirements and feeding management of swine, with an emphasis on evaluation and formulation of common feedstuffs and ration balancing.  
Prereq: 2603T or AnimSci 2200.01; GenMath 1040T or Math 1075 or Math Placement Level R or higher. This course is available for EM credit.

**3137T Dairy Cattle Feeding Management** **U 3**

Principles of dairy cattle feeding management with emphasis on the critical evaluation and formulation of rations in current management situations.  
Prereq: GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.

**3140T Animal Anatomy and Physiology** **U 4**

This subject will introduce the principles of animal body structure (anatomy) and function (physiology) as relevant for students of animal sciences and technology. This includes an introduction to anatomical nomenclature, cells and tissues and body systems.  
Prereq or concur: GenBiol 1200T or Biology 1113 or 1114; or permission of instructor. This course is available for EM credit.

**3150T Livestock Genetic Improvement** **U 3**

Principles of inheritance and the genetic improvement of livestock through cellular, qualitative, and population genetics; emphasizing breeding values, selection, and mating systems.  
Prereq: GenBiol 1200T or Biology 1113; GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

**3151T Horse Breeding and Selection** **U 3**

Principles of equine breeding management with emphasis on applied equine reproductive physiology, breeding methods, breeding stock management and basic genetics and selection. Recommended prereq: 3140T (221T) or GenBiol 1200T (120T).  
Prereq: 2201T (211T). Not open to students with credit for 266T. This course is available for EM credit.

**3157T Dairy Cattle Genetic Improvement** **U 3**

Principles of inheritance and the genetic improvement of dairy cattle through cellular, qualitative, and population genetics; emphasizing breeding values, selection, and mating systems.  
Prereq: GenBiol 1200T or Biology 1113; GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

**3161T Applied Equine Reproductive Management** **U 2**

Advanced course in equine reproductive management with emphasis on understanding and improving equine infertility; applications of current research; and development of technical skills.  
Prereq: 2201T (211T). Prereq or concur: 3151T (266T). Concur: 2189.01T or 2190.01T. Not open to students with credit for 269T.

**3167T Dairy Cattle Milking and Reproductive Management** **U 4**

A study of recommended dairy cattle milking and reproductive management practices, based on the anatomy and physiology of the systems.  
Prereq: Not open to students with credit for 201T and 203T. This course is available for EM credit.

**3170T Principles of Livestock Health** **U 3**

A basic introduction to the relationship between animal health and performance. Topics include: immunology, sanitation, disease etiology, and disease prevention, symptoms, and treatment.  
Prereq: 2202T or 2603T or AnimSci 2200.01. This course is available for EM credit.

**3171T Horse Health and Disease** **U 3**

Study of equine disease, lameness, and emergency first aid with emphasis on preventative health care and the manager's role with the veterinary professional.  
Prereq: 2201T or AnimSci 2200.01. This course is available for EM credit.

**3177T Dairy Cattle Health Management** **U 4**

A study of immunology and dairy cattle health management, including disease prevention, identification, and treatment of common diseases influencing the performance of dairy cattle.  
Prereq: Not open to students with credit for 201T, 203T, and 252T. This course is available for EM credit.

**3191.01T Equine Industry Internship Experience** **U 1 - 3**

Employment in the equine industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required. A grade of C or better required to meet graduation requirements.  
Prereq: 2189.01T (289.04T), 2201T (211T), CPHR 2.0 or above, Soph standing, and permission of instructor. Not open to students with credit for 290.04T. Repeatable to a maximum of 4 or hrs or 3 completions.

**3191.02T Beef Industry Internship** **U 2 - 3**

Employment in the beef industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required. A grade of C or better is required to meet graduation requirements.  
Prereq: 2202T, 2510.02T; CPHR 2.0 or above; permission of instructor. Repeatable to a maximum of 6 or hrs or 2 completions.

**3191.03T Swine Industry Internship** **U 2 - 3**

Employment in swine industry structured to provide varied occupational experiences; supervised by an industry employer & coordinated by faculty; written comprehensive report required. A grade of C or better is required to meet graduation requirements.  
Prereq: 2603T, 2510.03T; CPHR 2.0 or above; permission of instructor. Not open to students with credit for 290.02T. Repeatable to a maximum of 6 or hrs or 3 completions.

**3191.04T Small Ruminant Industry Internship** **U 2 - 3**

Employment in a small ruminant industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required. A grade of C or better required to meet graduation requirements.  
Prereq: 2202T, 2510.04T; CPHR 2.0 or above; permission of instructor. Repeatable to a maximum of 6 or hrs or 2 completions.

**3191.07T Dairy Industry Internship** **U 2 - 3**

Employment in the dairy industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required. A grade of C or better is required to meet graduation requirements.  
Prereq: 3167T (201T and 203T), 3207T (202T), 3177T (252T); CPHR 2.0 or above; permission of instructor. Repeatable to a maximum of 6 or hrs or 3 completions.

**3200T Livestock Selection and Evaluation** **U 2**

Principles of live animal selection and carcass evaluation of livestock.  
Prereq: 2202T or 2603T or 3140T or AnimSci 2200.01.

**3201T Horse Judging and Evaluation** **U 2**

Comparative evaluation of horse conformation by breed, assessment of performance in a variety of performance disciplines; development of tools for assessing and placing show horse classes.  
Prereq: Not open to students with credit for 212T. This course is available for EM credit.

**3207T Dairy Cattle Evaluation and Herd Records** **U 2**

Comparative evaluation of dairy cattle conformation and introduction to herd performance records; emphasis on breed characteristics, functional type, lifetime profitability, and record data collection, analysis, and use.  
Prereq: Not open to students with credit for 201T and 202T. This course is available for EM credit.

**3402T Beef Production and Management** **U 4**

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle in breeding and feeding production programs. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees. Recommended prerequisites: 2582.02T, 3130T, 3132T, 3140T, 3150T, and 3170T.  
Prereq: 2202T and 2510.02T.

**3403T Swine Production and Management II** **U 4**

An advanced study of the principles of managing a commercial swine enterprise. Coordination of production programs, evaluating economic performance, and a survey of contemporary swine housing and equipment options. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition & fees.  
Prereq: 2603T, 3140T, 3170T. Prereq or concur: 3132T, 3150T. Not open to students with credit for 2613T. This course is available for EM credit.

**3404T Small Ruminant Production and Management** **U 4**

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of sheep, goats, and other small ruminants. One to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees. Recommended prerequisites: 2582.04T, 3130T, 3132T, 3140T, 3150T, 3170T.  
Prereq: 2202T and 2510.04T.

**3407T Dairy Cattle Facilities, Environment, and Equipment** **U 3**

Design and management of dairy cattle facilities, environment, and associated equipment; emphasizing milking equipment and parlors, animal housing, environmental control, waste management, feeding systems, and utilities. 1 to 3 day field trips, including weekends, may be required. Students pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition & fees.  
Prereq: GenMath 1040T or Math 1050 or Math placement level R or higher. Prereq or concur: 3167T. This course is available for EM credit.

**3800T Principles of Farm Business Management** **U 4**

A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving.  
Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: BusTec 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for BusTec 240T. This course is available for EM credit. Cross-listed in CrpSoil.

**3887T Integrated Dairy Farm Business Management** **U 4**

A study of dairy farm business management combining business, financial, and animal management principles, practices, and strategies; emphasis placed on developing a business plan and problem solving.  
Prereq: AEDEcon 2001 or BusTec 1151T; Soph standing; minimum of 10 or hrs in AnmITec. This course is available for EM credit.

## 26 Anthropology

### Anthropology

**1100 Introduction to Anthropology** U 3

Introductory exploration of what it means to be human. Course highlights the anthropological sub disciplines of archaeology, biological anthropology, cultural anthropology, and linguistic anthropology.

GE cultures and ideas and soc sci orgs and politics and diversity global studies course.

**2194 Group Studies** U 1 - 3

Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered.  
Repeatable.

**2200 Introduction to Physical Anthropology** U 4

A scientific examination of humans as a biological and cultural organism based on primate evolution from living and fossil evidence; evolutionary theory and population adaptability. This course includes laboratory activities.

Prereq: Biology 1101 (101) or equiv. Not open to students with credit for 200. GE nat sci bio course.

**2200H Introduction to Physical Anthropology** U 4

A scientific examination of humans as a biological and cultural organism based on primate evolution from living and fossil evidence; evolutionary theory and population adaptability. This course includes laboratory activities.

Prereq: Honors standing, and Biology 1101 (101) or equiv; or Honors standing, and permission of department or instructor; or Biology 1101 (101) or equiv, and permission of department of instructor. Not open to students with credit for 2200 (200) or 200H. GE nat sci bio course.

**2201 Introduction to Archaeology** U 3

World prehistory from the origin of human culture through the development of civilization illustrated by selected examples; archaeological field method; concepts of analysis and interpretation.

Prereq: Not open to students with credit for 2201H. GE soc sci indivs and groups and diversity global studies course.

**2201H Introduction to Archaeology** U 3

World prehistory from the origin of human culture through the development of civilization illustrated by selected examples; archaeological field method; concepts of analysis and interpretation.

Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for 2201 (201) or 201H. GE soc sci indivs and groups and diversity global studies course.

**2202 An Introduction to Cultural Anthropology** U 3

Introduction to anthropological perspectives on cross-cultural variation in human behavior and societies.

Prereq: Not open to students with credit for 2202H. GE soc sci indivs and groups and diversity global studies course.

**2202H An Introduction to Cultural Anthropology** U 3

Introduction to anthropological perspectives on cross-cultural variation in human behavior and societies.

Prereq: Honors standing, or permission of instructor or department. Not open to students with credit for 2202. GE soc sci indivs and groups and diversity global studies course.

**2241 The Middle East Close-Up: People, Cultures, Societies** U 3

Introduction to the culture of the Middle East as lived in its villages, towns, and cities.

Prereq: Not open to students with credit for 241 or NELC 2241 (241). GE cultures and ideas and diversity global studies course. Cross-listed in NELC.

**3005 Careers with Anthropology** U 3

This course provides an overview of various career paths for students with degrees in anthropology. It will help students from all sub-fields of anthropology develop professional skills in preparation for life after graduation. Specifically, it focuses on the ways in which they can apply anthropological concepts, research methodologies, and analytical skills in a wide range of careers.

Repeatable to a maximum of 6 cr hrs.

**3191 Internship in Anthropology** U 1 - 6

An opportunity for work experience and on-the-job learning in anthropology-related employment.

Prereq: 2.5 CPHR or above, and Soph, Jr, or Sr standing, and enrollment in Anthropology major. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**3211 Introduction to Forensic Science** U 3

This team-taught interdisciplinary course will give students an introduction to the major concepts, issues and techniques used in forensic science. It is designed to expose students to different disciplines and career paths within forensic science.

Prereq: Not open to students with credit for ArtsSci 211.

**3300 Human Origins** U 3

The search for human origins through a reconstruction of the human and non-human primate fossil records of the last 60 million years; emphasis on human skeletal, behavioral, and social patterns.

Prereq: 2200 (200), or permission of instructor. Not open to students with credit for 300.

**3301 Modern Human Physical Variation** U 3

Survey of modern human biological diversity; examination of the underlying evolutionary and adaptive mechanisms responsible; exploration of the interplay between biology and behavior in adaptation.

Prereq: 2200 (200), or permission of instructor. Not open to students with credit for 301.

**3302 Introduction to Medical Anthropology** U 3

Relationship of anthropology to the art and science of medicine.

Prereq: 2200 and 2202, or permission of instructor.

**3304 The Living Primates** U 3

Survey of the behavior, morphology and conservation of living primates; particular emphasis given to field studies and the position of humans within the Order Primates.

Prereq: Not open to students with credit for 304. GE nat sci bio course.

**3305 Introduction to Forensic Anthropology** U 3

An introduction to the field of forensic anthropology in which students will be introduced to basic methods used to analyze unidentified human skeletal remains.

Prereq: Not open to students with credit for 305.

**3334 Zombies: The Anthropology of the Undead** U 3

Students will understand how culture and social organization help us define the living, the dead and the undead in the contemporary and archaeological record, and how we create social categories that organize our world and our place.

**3340 The Anthropology of Mental Health** U 3

Provides an introduction to global mental health through the lens of medical anthropology.

Students will gain a holistic understanding of prescient concerns in global mental health and the ways in which anthropology can contribute an understanding to the experience, diagnosis, treatment, and management of mental health issues by diverse populations.

GE diversity global studies course.

**3350 Prehistoric Indians of the Ohio Valley** U 3

The archaeology and cultural history of the Ohio Valley from the first human settlement to European colonization, emphasizing the Adena, Hopewell, and Ft Ancient traditions.

Prereq: 2201 (201), or permission of instructor. Not open to students with credit for 350.

**3401 Fundamentals of Archaeology** U 3

Introduction to basic archaeological theory and practice including fundamental field and laboratory, principles of survey, excavation, chronological analysis, typology, and palaeoethnography.

Prereq: 2201 (201), or permission of instructor. Not open to students with credit for 401.

**3409 Primate Evolution** U 3

Examination of the origin, radiation, and (in some cases) extinction of each primate clade including prosimians, New World monkeys, Old World monkeys, apes, and humans.

Prereq: Not open to students with credit for 409.

**3411 Human Ecological Adaptations** U 3

A study of the interactive relationships between humans and their environments, past and present, with a focus on human biology. EEOB 400 recommended.

Prereq: 2200 (200), or permission of instructor. Not open to students with credit for 411.

**3416 Latin American Peoples and Cultures** U 3

Latin American peoples and cultures.

Prereq: Not open to students with credit for 416.

**3418 Regional Survey of the Anthropology of Africa** U 3

Overview of anthropological studies of traditional African societies, with themes of European colonialism, kinship, social organization, economics, and politics.

Prereq: Not open to students with credit for 421.05.

**3419 Latin American Cultures and Migration in Global Perspective** U 3

An intensive ethnographic investigation of Latin American and Caribbean migration (Mexico, Ecuador, The Dominican Republic) including the history of migration; contemporary movement; and transnationalism.

GE soc sci orgs and politics course.

**3420 Indians of North America** U 3

Development of culture change in North American Indians.

Prereq: Not open to students with credit for 421.08. GE soc sci indivs and groups course.

**3434 Archaeology of the Holy Land** U 3

Challenges students to evaluate the cultural phenomena that are Bible and Qur'an in their historical context by studying a broad range of archaeological cultures in the periods during which the Bible and Qur'an came to be written texts. The course provides an introduction to the archaeology of periods and cultures 3500 BCE-700 CE in the Holy Land and its neighbors.

GE cultures and ideas course.

**3451 Archaeology of the Ancient Near East** U 3

Archaeology of the Levant, Mesopotamia and Egypt from human origins through the age of pyramids and ziggurats.

Prereq: Not open to students with credit for 451.

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<b>3452</b>	<b>Archaeology of the Pacific Islands</b>	<b>U</b>	<b>3</b>
Introduces the prehistory of the Pacific Islands from an archaeological perspective. It emphasizes voyaging, colonization, and the emergence of cultural complexity. Prereq: Not open to students with credit for 452.			
<b>3500</b>	<b>Primate Sexuality</b>	<b>U</b>	<b>3</b>
An evolutionary approach to the diversity of mating systems, morphologies, processes, and behaviors among prosimians, monkeys, apes, and humans. Prereq: 2200 (200). Not open to students with credit for 500.			
<b>3504</b>	<b>Introduction to Anatomy</b>	<b>U</b>	<b>3 - 4</b>
Introduction to Anatomy. Prereq: Not open to students with credit for 504.			
<b>3554</b>	<b>Archaeology of North America</b>	<b>U</b>	<b>3</b>
Detailed survey of native American prehistory: survey of the archaeology and cultural history of North America. Prereq: 2201 (201). Not open to students with credit for 553.02.			
<b>3555</b>	<b>New World Prehistory: Ancient Maya Civilization</b>	<b>U</b>	<b>3</b>
Detailed survey of native American prehistory: recent archeological and epigraphic discoveries and examines the ancient Maya civilization of Mesoamerica. Prereq: 2201 (201). Not open to students with credit for 553.04.			
<b>3597.01</b>	<b>Crisis! An Anthropological Perspective of Global Issues</b>	<b>U</b>	<b>3</b>
Analysis of cultural conflict in developing nations resulting from rapid and extensive technological and social change. Prereq: Not open to students with credit for 4597.01 or 597.01. GE soc sci indivs and groups and diversity global studies and cross-disciplinary seminar course.			
<b>3597.02</b>	<b>Women, Culture, and Development</b>	<b>U</b>	<b>3</b>
An analysis of the dramatic changes occurring in women's lives in response to development and modernization; developing and developed countries contrasted. Prereq: Not open to students with credit for 4597.02 or 597.02. GE soc sci indivs and groups and diversity global studies and cross-disciplinary seminar course.			
<b>3604</b>	<b>Intro to the Methods of Archaeological Science</b>	<b>U</b>	<b>3</b>
Introduces students to the myriad of interdisciplinary techniques that allow us to understand the human condition. Reviewed methods and case studies include ancient DNA analysis, stable and radiogenic isotopes, zooarchaeology, paleoethnobotany, material science, remote sensing, etc. This course is taught at an introductory level for non-science majors. Anthropol 2201 is suggested.			
<b>3623</b>	<b>Environmental Anthropology</b>	<b>U</b>	<b>3</b>
Theory and ethnographic examples of human-environment interactions, focusing on the role of culture and behavior in environmental adaptation. Prereq: 2202 (202) or equiv, or permission of instructor. Not open to students with credit for 5623 or 620.05.			
<b>4525</b>	<b>History of Anthropological Theory</b>	<b>U</b>	<b>3</b>
Major theoretical viewpoints in anthropology seen in their historical context. Prereq: 2202 (202), or permission of instructor. Not open to students with credit for 525 or 3525.			
<b>4597.03H</b>	<b>The Prehistory of Environment and Climate</b>	<b>U</b>	<b>3</b>
History of modern biotic communities, biological evidence of climatic change during the late glacial and Holocene, and exploration of the responses of terrestrial ecosystems to climatic functions. Prereq: Honors standing, and Jr or Sr standing. Not open to students with credit for 597.03. GE soc sci human, nat, and econ resources; diversity global studies; cross-disciplinary seminar course.			
<b>4998</b>	<b>Undergraduate Research in Anthropology</b>	<b>U</b>	<b>1 - 6</b>
Undergraduate research in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research in Anthropology- Honors</b>	<b>U</b>	<b>1 - 6</b>
Undergraduate research in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>2 - 6</b>
Undergraduate thesis research. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>2 - 6</b>
Honors Thesis Research. Prereq: Honors standing, and a grade of A in at least half of Anthropol courses taken, and an average of B in the remainder, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5193.01</b>	<b>Individual Studies: Theory</b>	<b>U G</b>	<b>1 - 80</b>
Theory. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

<b>5193.05</b>	<b>Individual Studies: Prehistory</b>	<b>U G</b>	<b>1 - 99</b>
Prehistory. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>5193.06</b>	<b>Individual Studies: Ethnography</b>	<b>U G</b>	<b>1 - 99</b>
Ethnography. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>5193.07</b>	<b>Individual Studies: Physical Anthropology</b>	<b>U G</b>	<b>1 - 99</b>
Physical Anthropology. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>5193.08</b>	<b>Individual Studies: Unclassified</b>	<b>U G</b>	<b>1 - 99</b>
Unclassified. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 12</b>
Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered. Prereq: Permission of instructor. Repeatable.			
<b>5600</b>	<b>Evolutionary Medicine</b>	<b>U G</b>	<b>3</b>
Biomedical and biosocial influences on problems of human health throughout the world, focusing upon the evolutionary implications of those problems. Prereq: Not open to students with credit for 601.01.			
<b>5601</b>	<b>The Anthropology of Sex, Drugs, and HIV</b>	<b>U G</b>	<b>3</b>
Biocultural and sociocultural aspects of health in modern and prehistoric populations. Prereq: Not open to students with credit for 601.02.			
<b>5602</b>	<b>Women's Health in Global Perspective</b>	<b>U G</b>	<b>3</b>
A cross-cultural comparison of the political, economic, social, and biological issues surrounding women's health. Prereq: 2200 (200), or permission of instructor. Not open to students with credit for 601.04. GE diversity global studies course.			
<b>5603</b>	<b>Strategy of Archaeological Field Research</b>	<b>U G</b>	<b>3</b>
Detailed examination of select topics concerning the recovery and analysis of archaeological data. Design of archaeological data recovery programs and their implementation through survey, excavation, and other methods. Prereq: 3401 (401). Not open to students with credit for 602.01.			
<b>5606</b>	<b>Who Owns the Past?</b>	<b>U G</b>	<b>3</b>
Examines key ethical and epistemological issues in archaeology, including changing cultural politics. Prereq: 2201 (201) and 3401 (401). Not open to students with credit for 602.04.			
<b>5607</b>	<b>Human Osteology</b>	<b>U G</b>	<b>3</b>
Study of human skeletal anatomy. Prereq: 2200 (200), or permission of instructor. Not open to students with credit for 603.01.			
<b>5608</b>	<b>Skeletal Biology</b>	<b>U G</b>	<b>3</b>
A survey of bone biology, including histogenesis, histomorphology, and physiology of bone; topics include bone structure, growth and development, physiology, and anthropological applications. Prereq: 2200 and 5607, or permission of instructor. Not open to students with credit for HthRhSc 5608. Cross-listed in HthRhSc.			
<b>5609</b>	<b>Dental Anthropology</b>	<b>U G</b>	<b>3</b>
Evolutionary anthropology of human and non-human primate teeth. Prereq: 2200 (200) or equiv, or permission of instructor. Not open to students with credit for 5643 (603.03).			
<b>5610</b>	<b>Bioarchaeology</b>	<b>U G</b>	<b>3</b>
Study of human remains from archaeological settings, with emphasis on relationship between biology, culture, health, and behavior. Prereq: 2200 (200), or permission of instructor. Not open to students with credit for 603.04.			
<b>5614</b>	<b>Ethnobotany</b>	<b>U G</b>	<b>3</b>
Introduction to the anthropological study of human interactions with the plant world. Prereq: A course in Anthropol or PlntBio at the 2000 level or above, or permission of instructor. Not open to students with credit for 610.			
<b>5615</b>	<b>Evolutionary Perspectives on Human Behavior</b>	<b>U G</b>	<b>3</b>
Advanced survey of contemporary evolutionary theories of human behavior and culture and their relevance to the broader discipline. Prereq: 2200 (200) and 2202 (202), and 10 additional cr hrs in Anthropol; or permission of instructor. Not open to students with credit for 611.			
<b>5620</b>	<b>Hunters and Gatherers</b>	<b>U G</b>	<b>3</b>
Overview of anthropological studies of people who subsist primarily by hunting and gathering wild food. Prereq: 2202 (202) or equiv, or permission of instructor. Not open to students with credit for 620.01.			



## 28 Anthropology

### 5624 The Anthropology of Food: Culture, Society and Eating U G 3

Explores food traditions, global expansion of foods and the production/exchange of food in culture and society.

Prereq: 2200 (200), 2201 (201), or 2202 (202), or permission of instructor. Not open to students with credit for 620.08.

### 5626 More: Culture and Economic Life U G 3

An analysis of economic rationality in non-market and market societies; resource allocation, work organization, product disposition, exchange, money, trade, and development.

Prereq: 2202 (202) or equiv, or permission of instructor. Not open to students with credit for 620.15.

### 5627 Migrants and Refugees: The Anthropology of Mobility U G 3

This course is an anthropological investigation of human mobility with a focus on the movement of migrants and refugees. Credit for 2202 is recommended but not required.

### 5641 Primate Behavior U G 3

A broad survey of living primates, major taxonomic groups within the order, diet, group living, mating strategies, predation, intelligence.

Prereq: Not open to students with credit for 640.01.

### 5642 Growth and Development U G 3

Growth and development.

Prereq: 2200 (200) or equiv, or permission of instructor. Not open to students with credit for 640.02.

### 5644 Forensic Anthropology U G 3

Application of osteological and bioarchaeological methods in forensic science.

Prereq: 2200 (200) and 5607 (603.01) or equiv, or permission of instructor. Not open to students with credit for 640.04.

### 5645 Biology of Senescence U G 3

Biology of human senescence, aging, longevity, and chronic disease; evolutionary theories, mechanistic models, biocultural influences, cellular and physiological processes; biodemography, interventions, hormesis.

Prereq: 2200 (200), Biology 1101 (101), or 1113 (113), or permission of instructor. Not open to students with credit for 640.05.

### 5650 Research Design and Ethnographic Methods U G 3

Students learn to study anthropological problems through hands on experience with ethnographic methods, critical discussion of issues in ethnographic research and design of an ethnographic study.

Prereq: 2202 (202), or permission of instructor. Not open to students with credit for 650.

### 5651 Spatial Analysis for Anthropologists U G 3

Introduces the analysis of spatial data in anthropological research; data collection; analysis using GIS; theoretical and methodological issues pertaining to research design.

Prereq: Geog 607 (undergrads only), or permission of department. Not open to students with credit for 651.

### 5684 Summer Field School in Archaeology- Fee U G 3 - 15

Practical experience in archaeological fieldwork including site survey, excavation, surveying and mapping, preservation, and other related methods and techniques of data recovery. This course has a lab fee for room, board and supplies.

Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.

### 5685 Summer Field School in Archaeology U G 2 - 15

Practical experience in archaeological fieldwork including site survey, excavation, surveying and mapping, preservation, and other related methods and techniques of data recovery.

Prereq: Permission of instructor. Repeatable.

### 5686 Practical Training in Forensic Anthropology U G 3

Hands-on Forensic Anthropology course covering crime scene processing, evidence collection, and case development for testimony in court. Students process indoor and outdoor crime scenes where foul play is suspected to have occurred and then learn about expert testimony.

### 5700 Anthropology, Public Health, and Human Rights U G 3

This course provides an introduction to the relationship between medical anthropology and global public health with an emphasis on social justice and health as a human right. Health policy, evidence-based medicine, children's health, HIV, TB, chronic disease, citizenship and deservingness, and other health topics will be discussed and analyzed from a cross-cultural and ethnographic perspective.

### 5701 Health and Healing in Latin America and the Caribbean U G 3

A biocultural examination of traditional and western healing practices and health disparities across the Latin American region. This course considers diverse perspectives on disease causality and prevention including shamanism, ethnophysiology, and ethnobotany.

### 5797 Study at a Foreign Institution U G 1 - 27

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

Prereq: Permission of dept chairperson. Repeatable to a maximum of 40 or hrs or 27 completions. This course is progress graded.

### 7001 Society and Environment G 3

This course provides an overview of major theoretical paradigms that have shaped anthropological research on humans and their environment. The goal is to train students to think theoretically as anthropologists by critically examining primary and secondary sources for a selection of theoretical paradigms on social-ecological systems.

### 7002 Anthropological Approaches to Health G 3

This course provides an overview of major theories, paradigms and approaches that have shaped anthropological research on the physical, biological, social and cultural factors that shape human health in the past and present. The goal of this course is to provide students with an understanding of how anthropologists define and study health.

### 7003 Human Evolutionary History G 3

This course provides an overview of major theoretical paradigms that have shaped anthropological research on human evolutionary history. The goal is to train students to think theoretically as anthropologists by critically examining primary and secondary sources for a selection of theoretical paradigms in human evolutionary history.

### 7004 Social-Ecological Systems G 3

This course provides an overview of frameworks, theories and methods used in the interdisciplinary study of social-ecological systems, including complexity theory, complex adaptive systems, resilience, institutional analysis, ecosystem services, and coupled human and natural systems. Students will also learn how to effectively collaborate in interdisciplinary studies of social-ecological systems.

Prereq: Not open to students with credit for ENR 7004. Cross-listed in ENR.

### 7005 Careers with Anthropology G 3

This course provides an overview of various career paths for students with graduate degrees in anthropology. It will help students from all sub-fields of anthropology develop professional skills in preparation for life after graduation. Specifically, it focuses on the ways in which they can apply anthropological concepts, research methodologies, and analytical skills in a wide range of careers.

### 7007 Academic Workshop G 1

This workshop has as its main goal to offer students of all cohorts a place for research presentations, academic discussions and professional development. The workshop consists of weekly meetings with a diversity of topics arranged by the course coordinator.

Repeatable to a maximum of 14 cr hrs.

### 7101 Research Design G 3

In this seminar each student will develop a research design for an anthropological research project. The focus of the seminar is on designing the research project and learning how research results and conclusions are assessed and disseminated. Topics include the relationship between theory and methods, ethics and IRB protocols, data collection methods, analysis of qualitative and quantitative data.

### 7194 Group Studies G 2 - 80

Group Studies.

Repeatable.

### 7701 Advanced Topics in Physical Anthropology: Modern Human Physical Variation G 3

Discussion of advanced topics in human variation and hominid evolution; emphasis on critical analysis and evolution of theoretical topics in research design. Survey of modern human biological diversity; underlying evolution and adaptability.

Prereq: Not open to students with credit for 701.01.

### 7702 Advanced Topics in Physical Anthropology: Hominid Paleanthropology G 3

Advanced topics in human variation and hominid evolution; emphasis on critical analysis and evolution of theoretical topics in research design.

Prereq: Not open to students with credit for 701.02.

### 7703 Theories in Cultural Anthropology G 3

Major theoretical orientations in cultural anthropology; the developmental histories of the major theoretical schools and examination of their respective philosophical foundations.

Prereq: Not open to students with credit for 702.

### 7720 Teaching In Anthropology G 4

Focuses on skills and pedagogy involved in teaching introductory anthropology.

Prereq: Grad standing in Anthro or related discipline.

### 7777 Data Collection Workshop G 1

The workshop has as its main goal to introduce several different data collections techniques that are commonly applied in Anthropology. The workshop consists of lectures by the faculty in the department, who will introduce their research and data collection protocols. The lectures by Faculty will be complemented by discussions with the invited Faculty and readings that cover the methods discussed.

Repeatable to a maximum of 4 cr hrs.

### 7800 We are what we eat: Applications of biogeochemistry G 3

Students will study both current and classic geochemical methodological developments and case studies from throughout the globe. Provides an introductory understanding of common methods in archaeochemistry and biogeochemistry, while emphasizing how these studies have pushed the epistemological boundaries of archaeological knowledge.

<b>7801</b>	<b>Archaeology of Hunter-Gatherer Societies</b>	<b>G</b>	<b>3</b>
Advanced study of hunter-gatherer band society from theoretical, ethnographic, and archaeological perspectives. Prereq: Grad standing. Not open to students with credit for 801.01.			
<b>7802</b>	<b>Origins of Food Production</b>	<b>G</b>	<b>3</b>
Advanced theoretical and comparative study of the origins of food production in the Old and New Worlds. Prereq: Admission to Grad program. Not open to students with credit for 801.02.			
<b>7803</b>	<b>The Archaeology of Complex Societies</b>	<b>G</b>	<b>3</b>
Advanced theoretical and comparative study of the rise and fall of complex societies in antiquity in the Old and New Worlds. Prereq: Admission to Grad program. Not open to students with credit for 801.03.			
<b>7804</b>	<b>Issues in Archaeological Theory</b>	<b>G</b>	<b>3</b>
Examination of the assumptions and concepts underlying analysis of archaeological data; methods of reconstructing cultural history, past lifeways, and explaining cultural change. Prereq: Admission to Grad program. Not open to students with credit for 802.			
<b>7805</b>	<b>Seminars in Ethnology</b>	<b>G</b>	<b>2 - 27</b>
Seminars in Ethnology. Repeatable to a maximum of 27 cr hrs or 14 completions.			
<b>7999</b>	<b>Research in Anthropology: Thesis</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis purposes only. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>8193.01</b>	<b>Individual Studies: Theory</b>	<b>G</b>	<b>1 - 99</b>
Theory. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8193.04</b>	<b>Individual Studies: Research Methods</b>	<b>G</b>	<b>1 - 27</b>
Research methods. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8193.05</b>	<b>Individual Studies: Prehistory</b>	<b>G</b>	<b>1 - 27</b>
Prehistory. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8193.06</b>	<b>Individual Studies: Ethnology</b>	<b>G</b>	<b>1 - 27</b>
Ethnology. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8193.07</b>	<b>Individual Studies: Physical Anthropology</b>	<b>G</b>	<b>1 - 27</b>
Physical anthropology. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8193.08</b>	<b>Individual Studies: Unclassified</b>	<b>G</b>	<b>1 - 27</b>
Unclassified. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8193.09</b>	<b>Individual Studies: Cultural Anthropology</b>	<b>G</b>	<b>1 - 80</b>
Cultural anthropology. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 20</b>
Group studies. Repeatable.			
<b>8827</b>	<b>Communicating Anthropology</b>	<b>G</b>	<b>3</b>
This course will walk students through the process of communicating research across several common platforms available to academics nowadays. The main goal is to work with students on the development of their academic narratives and then discuss how such narratives can (and should) be adjusted to different audiences.			
<b>8828</b>	<b>Writing Research Proposals in Anthropology</b>	<b>G</b>	<b>3</b>
The primary focus of this course is on writing competitive grant proposals in anthropology and students should use this course to develop their own research and grant proposals.			
<b>8891.04</b>	<b>Seminars in Cultural Anthropology: Human Ecology</b>	<b>G</b>	<b>2 - 27</b>
Human ecology. Repeatable to a maximum of 27 cr hrs or 14 completions.			
<b>8891.05</b>	<b>Graduate Seminar in Research Design and Ethnographic Methods</b>	<b>G</b>	<b>3</b>
Study design and data analysis. Repeatable to a maximum of 6 cr hrs.			
<b>8892.01</b>	<b>Seminars in Physical Anthropology: Evolutionary Theory</b>	<b>G</b>	<b>2 - 6</b>
Evolutionary theory. Prereq: Grad standing in Anthropol. Repeatable to a maximum of 6 cr hrs or 3 completions.			
<b>8892.09</b>	<b>Seminars in Physical Anthropology: Biocultural Medical Anthropology</b>	<b>G</b>	<b>3</b>
Explores human reproduction from a biocultural and ecological perspective. Repeatable to a maximum of 27 cr hrs.			

<b>8892.11</b>	<b>Seminars in Physical Anthropology: Quantitative Methods</b>	<b>G</b>	<b>2 - 6</b>
Quantitative methods. Repeatable to a maximum of 6 cr hrs or 3 completions.			
<b>8892.12</b>	<b>Seminars in Physical Anthropology: Quantitative Methods II: Advanced</b>	<b>G</b>	<b>2 - 27</b>
Quantitative Methods II: Advanced. Repeatable to a maximum of 27 cr hrs or 14 completions.			
<b>8892.13</b>	<b>Seminars in Physical Anthropology: Bioarchaeology</b>	<b>G</b>	<b>3</b>
Seminar on the study of human remains from archaeological contexts; focus on health, disease, injury, biomechanics, diet, and population history. Repeatable to a maximum of 27 cr hrs.			
<b>8892.14</b>	<b>Seminars in Physical Anthropology.</b>	<b>G</b>	<b>2 - 27</b>
Seminars in physical anthropology. Repeatable to a maximum of 27 cr hrs or 14 completions.			
<b>8893.06</b>	<b>Seminars in Prehistory: Paleodiet</b>	<b>G</b>	<b>3</b>
Advanced survey of current archaeological research on past human diet, with emphasis on methods. Provides graduate-level advanced study of human diet as revealed through the archaeological record. Prereq: Not open to students with credit for 830.06.			
<b>8999</b>	<b>Research in Anthropology: Dissertation</b>	<b>G</b>	<b>1 - 80</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## Arabic

<b>1101.01</b>	<b>Elementary Modern Standard Arabic I</b>	<b>U</b>	<b>4</b>
Developing the ability to use Arabic functionally and communicatively in context; intensive oral interaction with instructor and fellow students; the basics of the writing system. Classroom track. Not open to native speakers of Arabic. Prereq: Not open to students with 1101.02 or 4 cr hrs of 1101.51. This course is available for EM credit. GE for lang course.			
<b>1101.02</b>	<b>Elementary Modern Standard Arabic I: Intensive</b>	<b>U</b>	<b>4</b>
Developing the ability to use Arabic functionally and communicatively in context; intensive oral interaction with instructor and fellow students; the basics of the writing system. Intensive classroom track. Not open to native speakers of Arabic through regular course enrollment, transfer, or EM credit. Prereq: Permission of department. Concur: 1102.02. Not open to students with credit for 1101.01, 1101.02, or 4 credit hours of 1101.51. This course is available for EM credit. GE for lang course.			
<b>1102.01</b>	<b>Elementary Modern Standard Arabic II</b>	<b>U</b>	<b>4</b>
Developing further language ability through learning how to perform certain functions orally and using them with fellow students; reading and writing passages reflecting their abilities. Classroom track. Not open to native speakers of Arabic. Prereq: 1101.01 or 4 cr hrs of 1101.51. Not open to students with credit for 1102.02 or 4 cr hrs of 1102.51. This course is available for EM credit. GE for lang course.			
<b>1102.02</b>	<b>Elementary Modern Standard Arabic II: Intensive</b>	<b>U</b>	<b>4</b>
Developing further language ability through learning how to perform certain functions orally and using them with fellow students; reading and writing passages reflecting their abilities. Intensive classroom track. Not open to native speakers of Arabic through regular course enrollment, transfer, or EM credit. Prereq: Permission of department. Concur: 1101.02. Not open to students with credit for 1102.01 or 4 cr hrs of 1102.51. This course is available for EM credit. GE for lang course.			
<b>1103.01</b>	<b>Intermediate Modern Standard Arabic I</b>	<b>U</b>	<b>4</b>
Building on previously acquired functional abilities; using Arabic to express opinion and feelings; oral interaction in the classroom; reading authentic texts or various genres. Classroom track. Not open to native speakers of Arabic. Prereq: 1102.01, 1102.02, or 4 cr hrs of 1102.51. Not open to students with credit for 1103.02 or 4 cr hrs of 1103.51. This course is available for EM credit. GE for lang course.			
<b>1103.02</b>	<b>Intermediate Modern Standard Arabic I: Intensive</b>	<b>U</b>	<b>4</b>
Building on previously acquired functional abilities; using Arabic to express opinion and feelings; increased oral interaction in the classroom; reading simplified original texts. Intensive classroom track. Not open to native speakers of Arabic through regular course enrollment, transfer, or EM credit. Prereq: Permission of department. Concur: 2104.02. Not open to students with credit for 1103.01 or 4 cr hrs of 1103.51. This course is available for EM credit. GE for lang course.			
<b>1113</b>	<b>Introductory Arabic for Heritage Learners I</b>	<b>U</b>	<b>4</b>
This intensive course is intended for heritage speakers and qualified Arabic speakers. It combines three semesters of Modern Standard Arabic into one semester and focuses on the productive skills (speaking and writing). Prereq: To qualify for this course, students are expected to be able to speak and understand well an Arabic dialect. This prior knowledge of a dialect is essential and will be used as a bridge towards learning Modern Standard Arabic. An interview will be conducted by the course instructor in order to establish a proficiency level. GE for lang course.			

## 30 Arabic

**2001 Arabic Pronunciation** U 3

The Arabic Pronunciation course is designed to improve and perfect the student's pronunciation of Modern Standard Arabic. Students will learn the articulatory features of speech production and ways in which to correct and enhance their oral production. They will gradually be introduced to some basic linguistic terminology of articulatory phonetics. Students will develop functional intelligibility.  
Prereq: 1103 or equiv., or permission of instructor.

**2104.01 Intermediate Modern Standard Arabic II** U 5

Initiating and sustaining communication, reading and understanding short authentic passages, and writing to express many language functions. Regular classroom track. Not open to native speakers of Arabic.  
Prereq: 1103.01 or 4 credit hours of 1103.51. Not open to students with credit for 2104.02.

**2104.02 Intermediate Modern Standard Arabic II: Intensive** U 5

Initiating and sustaining communication; reading and understanding short original texts and passages; writing to express many language functions. Intensive classroom track. Not open to native speakers of Arabic.  
Prereq: Permission of department. Concur: 1103.02. Not open to students with credit for 2104.01.

**2111 Colloquial Arabic I** U 3

Introduction to the phonology and grammar of the everyday spoken language used in the Eastern Arab World.  
Prereq or concur: 1103.01 or 1103.02. Not open to students with credit for 4111.

**2112 Colloquial Arabic II** U 3

Continued study of the phonology and grammar of the everyday spoken language used in the Eastern Arab world.  
Prereq: 2111 or 4111. Not open to students with credit for 4112.

**2193 Individual Studies** U 1 - 10

Individual Studies  
Prereq: Permission of department or instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**2194 Group Studies** U 1 - 10

Group Studies  
Prereq: Permission of department or instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.

**2241 Contemporary Arab Cultures: Arts, Mass Media, Society** U 3

This course explores the intersecting political, artistic, and intellectual currents and practices that have shaped contemporary Arab cultures. It is organized as a survey of different cultural phenomena in Arab societies and diasporas including: the Arabic language and its varieties, music, poetry, law, television & cinema, and more.  
GE culture and ideas and diversity global studies course.

**2701 Classical and Medieval Arabic Literature in Translation** U 3

Reading and analysis of major works of Arabic literature from the 6th to the 17th centuries including classical poetry, the Qur'an, and the Arabian Nights.  
Prereq: English 1110 (110). Not open to students with credit for 371. GE lit and diversity global studies course.

**2702 Modern Arabic Literature in Translation** U 3

Reading and analysis of representative works of the 19th and 20th centuries; by contemporary women authors.  
Prereq: English 1110 (110). Not open to students with credit for 2702 (372), 2702H (372H), 372, or WGSSt 2702H (372H). GE lit and diversity global studies course. Cross-listed in WGSSt.

**2702H Modern Arabic Literature in Translation** U 3

Reading and analysis of representative works of the 19th and 20th centuries by contemporary women authors.  
Prereq: Honors standing, and English 1110 (110) or equiv. Not open to students with credit for 372H, 2702 (372), WGSSt 2702 (372), or 2702H (372H). GE lit and diversity global studies course. Cross-listed in WGSSt.

**2798.01 Morocco May Tour: The Arab World Up Close; History, Religion, Culture and Politics** U 3

Introduces students to 19th- and 20th-Century as well as contemporary history, politics, literature and culture of Morocco, through conversations with major political, civil, and intellectual figures in visits to such places as the Royal Library, The Royal Academy for Amazighi Studies, Parliament, NGOs premises, as well as to Fez, Meknes, and Marrakesh.

**3105 Intermediate Modern Standard Arabic III** U 5

Developing reading skills through reading adapted and authentic Arabic texts; selections reflect cultural and literary aspects of Arabic culture.  
Prereq: 2104.

**3301 Contemporary Folklore in the Arab World** U 3

Study of contemporary folklore of the Arab World including verbal art, material culture, visual self-presentation, and performance.  
Prereq: Not open to students with credit for 377. GE culture and ideas and diversity global studies course. Cross-listed in CompStd 3657.

**3601 Introduction to Arabic Philosophy** U 3

Surveying the development and major subjects and thinkers of the most vivid period of Arabic philosophy.

**3702 Place, Space, and Migration in Modern Arabic Literature and Film** U 3

This course on modern Arabic literature and culture in translation focuses on questions of belonging, relationship to space, and migration. It examines how Arabic literary narratives, films, documentaries, and other arts have imagined modes of belonging to spaces such as cities and nations, the natural world (and even the universe!) from the early postcolonial period to the present.  
Prereq: English 1110. GE lit and diversity global studies course.

**3705 A Thousand and One Nights: Storytelling in Arabic and World Literature** U 3

In this course, we will read the 14th century collection of tales that constitute the earliest existing version of The Thousand and One Nights and analyze it both in relation to the medieval genres and concerns that shaped it and through contemporary theoretical frameworks.  
Prereq: English 1110. GE lit course.

**4106 High Intermediate Modern Standard Arabic** U 5

Continued development of language skills through reading and evaluating a variety of authentic Arabic texts and genres; writing compositions on various aspects of Arabic culture.  
Prereq: 3105.

**4108 Advanced Arabic Grammar** U 3

Advanced discussion of Arabic morphology and syntax with readings from both modern and classical texts from various genres.  
Prereq: 4106.

**4120 Arabic Media** U 3

Reading/Listening to contemporary media in Arabic--youth culture, politics, contemporary issues.  
Prereq: 2104.01 or 2104.02. Not open to students with credit for 420.

**4998 Undergraduate Research in Arabic** U 1 - 3

Offers undergraduates with special aptitudes a greater opportunity to do more independent study and research than is possible in normal course work.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**4998H Undergraduate Honors Research in Arabic** U 1 - 3

Offers undergraduate honors students a rigorous opportunity to do more independent study and research than is possible in normal coursework.  
Prereq: Honors standing, and permission of instructor. Not open to students with credit for 783H. This course is graded S/U.

**4999 Undergraduate Thesis** U 1 - 3

Offers undergraduates with special aptitudes and advanced skills the opportunity to do independent study leading to a thesis.  
Prereq: Sr standing, B average in Arabic coursework, permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**4999H Undergraduate Honors Thesis** U 1 - 3

Offers undergraduates with special aptitudes the opportunity to do independent study leading to an honors thesis.  
Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**5193 Individual Studies** U G 1 - 10

Individual Studies.  
Prereq: Permission of department. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 10

Group Studies  
Prereq: Permission of department. Repeatable to a maximum of 20 cr hrs or 5 completions.

**5401 Translation: Theory and Practice** U G 3

Examination of some general guidelines for translating from Arabic to English or from English to Arabic, depending on the first language of the student. Requires advanced reading proficiency.  
Prereq: Arabic 3105, or permission of instructor. Not open to students with credit for 615.

**5611 History of the Arabic Language** U G 3

Survey of the evolution of the Arabic language in its cultural and historical setting.  
Prereq: Not open to students with credit for 611.

**5627 Classical Arabic Poetry** U G 3

Selected readings from classical and medieval Arabic poetry; Arabic metrics and literary theory.  
Prereq: 3105 (401), or permission of instructor. Not open to students with credit for 627.

**5628 Classical Arabic Prose** U G 3

Selected readings reflecting the evolution of Arabic prose literature from its origins to the late Abbasid period.  
Prereq: 3105 (401), or permission of instructor. Not open to students with credit for 628.

<b>5651</b>	<b>Contemporary Arabic Prose Fiction</b>	<b>U G</b>	<b>3</b>
Reading and analysis of short stories and novels representative of major developments and trends of the 20th century. Prereq: 3105 (401), or permission of instructor. Not open to students with credit for 651.			
<b>5652</b>	<b>Contemporary Arabic Poetry and Drama</b>	<b>U G</b>	<b>3</b>
Reading and analysis of plays and poems representative of major developments and trends of the 20th century. Prereq: 3105 (401), or permission of instructor. Not open to students with credit for 652.			
<b>5702</b>	<b>Arabic Folk Narrative in Translation</b>	<b>U G</b>	<b>3</b>
Literary and cultural aspects of 1001 Nights and other popular narratives (epics, legends, folktales) in the Arab world. Prereq: Not open to students with credit for 672.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Repeatable to a maximum of 30 cr hrs or 5 completions. This course is progress graded.			
<b>6501</b>	<b>Modern Arab-Muslim Thought</b>	<b>G</b>	<b>3</b>
Examining critically contemporary responses and revisions of Arab and Muslim classical Humanism. Repeatable to a maximum of 9 cr hrs.			
<b>6701</b>	<b>Major Issues of Arabic Philosophy</b>	<b>G</b>	<b>3</b>
Analyzing important texts dealing with God, man, knowledge, society, religion and politics; discussing modern approaches and interpretations. Prereq: 6 cr hrs of Arabic Literature at the 5000 level or equiv. Repeatable to a maximum of 9 cr hrs.			
<b>7601</b>	<b>Studies in Arabic Poetry</b>	<b>G</b>	<b>3</b>
Advanced study of specific poetic periods, figures, and/or topics involving extensive reading and discussion of appropriate primary and secondary source materials. Prereq: 6 cr hrs of Arabic Literature at the 5000 level or equiv. Repeatable to a maximum of 9 cr hrs.			
<b>7602</b>	<b>Studies in Arabic Prose</b>	<b>G</b>	<b>3</b>
Advanced study of specific periods, authors and/or genres of prose writing (literary or non-literary) involving extensive reading and discussion of primary and secondary materials. Prereq: 6 cr hrs of Arabic Literature at the 5000 level or equiv. Repeatable to a maximum of 12 cr hrs.			
<b>7891</b>	<b>Teaching Arabic at the College Level</b>	<b>G</b>	<b>3</b>
Methods and techniques for the teaching of Arabic at the college level. Prereq: GTA in NELC, or permission of instructor. Not open to students with credit for 801.			
<b>8891</b>	<b>Seminar in Arabic Studies</b>	<b>G</b>	<b>4</b>
Intensive investigation of a selected topic or problem in Arabic linguistics, philology, literature, or literary culture. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs.			

## Architecture

<b>1100</b>	<b>Architecture Survey</b>	<b>U</b>	<b>1</b>
Introduction to the University, the Knowlton School of Architecture, and the disciplines of architecture, landscape architecture, and city and regional planning. Prereq: Not open to students with credit for 1100E, 100, 100H, CRPlan 1100 (100), 1100E, LArch 1100 (100), 1100E, or any survey course. Cross-listed in LArch and CRPlan.			
<b>1100E</b>	<b>Architecture Survey Honors</b>	<b>U</b>	<b>1</b>
Introduction to the University, the Knowlton School of Architecture and the professions of architecture, city and regional planning and landscape architecture. Honors section. Prereq: Honors standing. Not open to students with credit for 1100, 100, 100H, CRPlan 1100 (100), 1100E, LArch 1100 (100), 1100E, or any survey course. Cross-listed in LArch and CRPlan.			
<b>2220</b>	<b>Sustainability and the Built Environment</b>	<b>U</b>	<b>3</b>
Introduction to sustainability and the built environment, emphasis on cultural context, including contributing geographic, political, social, and economic factors which influence the form of the constructed world. Prereq: Not open to students with credit for 201 or 3rd and 4th year Arch majors. GE soc sci human, nat, and econ resources course.			
<b>2220E</b>	<b>Sustainability and the Built Environment</b>	<b>U</b>	<b>3</b>
Introduction to sustainability and the built environment, emphasis on cultural context, including contributing geographic, political, social, and economic factors which influence the form of the constructed world. Prereq: Honors standing. Not open to students with credit for 201, or 3rd and 4th year Arch majors. GE soc sci human, nat, and econ resources course.			
<b>2300</b>	<b>Outlines of the Built Environment</b>	<b>U</b>	<b>3</b>
Introduction to architecture, landscape architecture, and planning as cultural practices that shape the physical environment. Prereq: Not open to students with credit for 1210, 2300E, LArch 1210, 2300, or 2300E. GE cultures and ideas course. Cross-listed in LArch.			

<b>2300E</b>	<b>Outlines of the Built Environment</b>	<b>U</b>	<b>3</b>
Introduction to the discipline of architecture and landscape architecture and planning with an emphasis on the physical artifact and its formal and cultural context. Honors section. Prereq: Honors standing. Not open to students with credit for 200, 1210, 2300, LArch 1210 (200), 2300, or 2300E. GE cultures and ideas course. Cross-listed in LArch.			
<b>2310</b>	<b>Introduction to Design</b>	<b>U</b>	<b>4</b>
Introduction to the design of the physical environment through the exploration of form, space, and order using drawing and modeling techniques. Prereq: Not open to students with credit for 1410, 151, LArch 1410 (202), or LArch 2310. Cross-listed in LArch.			
<b>2410</b>	<b>Architectural Design I</b>	<b>U</b>	<b>6</b>
Architectural design with an emphasis on technique. Prereq: Acceptance into B.S. Arch program. Concur: 5610. Not open to students with credit for 241 or 242.			
<b>2420</b>	<b>Architectural Design II</b>	<b>U</b>	<b>6</b>
Architectural design with an emphasis on technique. Continuation of Arch 2410. Prereq: 2410, or both 241 and 242. Concur: 5610 (only for students pursuing a B.S. in Arch). Not open to students with credit for 243.			
<b>2610</b>	<b>Introduction to Digital Design Software</b>	<b>U</b>	<b>3</b>
This course introduces students to architectural design strategies as they relate to introductory computer tools. Prereq: A grade of B- or above in 2310 or LArch 2310. Repeatable to a maximum of 15 cr hrs.			
<b>3192</b>	<b>Homes and Houses: Where We Live</b>	<b>U</b>	<b>3</b>
Introduction to architecture as an artistic practice through exploration of the way we design, build, and occupy houses. Historical survey of both everyday and refined dwellings, focusing on twentieth century North American architects and houses will challenge accepted norms of home design and how those have evolved. The impact of "high" design on the everyday will be a theme. GE VPA course.			
<b>3194</b>	<b>Group Studies in Architecture</b>	<b>U</b>	<b>1 - 15</b>
For group-based special studies in architecture within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>3195</b>	<b>Modern Rome</b>	<b>U</b>	<b>3</b>
Rome's historic and current architecture and its urban evolution will reveal timeless and timely influences during the modern period. Design-based historic scholarship will draw on visual literacy and creative inquiry to understand, appreciate and assess one of the most intriguing, beautiful, important and enduring cities in Western civilization. GE cultures and ideas course, and diversity global studies course.			
<b>3410</b>	<b>Architectural Design III</b>	<b>U</b>	<b>6</b>
Architectural design with an emphasis on materiality. Prereq: 2420 (243). Not open to students with credit for 341 or 342.			
<b>3420</b>	<b>Architectural Design IV</b>	<b>U</b>	<b>6</b>
Architectural design with an emphasis on materiality. Continuation of Arch 3410. Prereq: 3410, or both 341 and 342. Not open to students with credit for 343.			
<b>3420.02</b>	<b>Architectural Design IV</b>	<b>U</b>	<b>3</b>
Architectural design with an emphasis on materiality. Continuation of 3410. Part two of two with 3420.01. Prereq: 3410 (341 and 342). Not open to students with credit for 343.			
<b>4193</b>	<b>Independent Studies in Architecture</b>	<b>U</b>	<b>1 - 15</b>
For students who wish to pursue special independent studies in architecture with the guidance of an advisor/instructor. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Architecture</b>	<b>U</b>	<b>1 - 15</b>
For group-based special studies in architecture within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>4410</b>	<b>Architectural Design V</b>	<b>U</b>	<b>6</b>
Architectural design with an emphasis on organization. Prereq: 3420 (343). Not open to students with credit for 441 or 442.			
<b>4420</b>	<b>Architectural Design VI</b>	<b>U</b>	<b>6</b>
Architectural design with an emphasis on organization. Continuation of Arch 4410. Prereq: 4410, 4999, or 4999H.			
<b>4596</b>	<b>Design Agency on Wicked Problems: World Building Your Life</b>	<b>U</b>	<b>3</b>
In an era of rapid change locally and globally, technologically and socially, we are increasingly confronted by complex emergent systems problems, or Wicked Problems. This course will provide a theoretical framework for understanding and working on wicked problems, and uses design methodologies coming from architectural design to work on the wicked problem of designing your life. Prereq: Not open to students with credit for 4596E. GE cultures and ideas and cross-disciplinary seminar course.			

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<b>4596E</b>	<b>Design Agency on Wicked Problems: World Building Your Life</b>	<b>U</b>	<b>3</b>
In an era of rapid change locally and globally, technologically and socially, we are increasingly confronted by complex emergent systems problems, or Wicked Problems. This course will provide a theoretical framework for understanding and working on wicked problems, and uses design methodologies coming from architectural design to work on the wicked problem of designing your life. Prereq: Honors standing. Not open to students with credit for 4596. GE cultures and ideas course and cross-disciplinary seminar course.			
<b>4780</b>	<b>Undergraduate Research Methods</b>	<b>U</b>	<b>3</b>
Focuses on a broad scope of research methods and the development of architectural design and planning research techniques and skills. Prereq: Enrollment in a major within the Knowlton School of Architecture.			
<b>4780H</b>	<b>Undergraduate Research Methods</b>	<b>U</b>	<b>3</b>
Focuses on a broad scope of research methods and the development of architectural design and planning research techniques and skills. Prereq: Honors standing, and major within the Knowlton School of Architecture. Not open to students with credit for 783H.			
<b>4798</b>	<b>Study Tour</b>	<b>U</b>	<b>1 - 15</b>
Group international and domestic travel programs. Opportunities tailored to complement the classroom experience. Repeatable to a maximum of 45 cr hrs or 3 completions.			
<b>4798E</b>	<b>Study Tour</b>	<b>U</b>	<b>1 - 15</b>
Group international and domestic travel programs. Opportunities tailored to complement the classroom experience. Prereq: Honors standing. Repeatable to a maximum of 45 cr hrs or 3 completions.			
<b>4880</b>	<b>Interdepartmental Seminar</b>	<b>U</b>	<b>1 - 15</b>
Interdepartmental seminar; topics to be announced. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in CRPlan and LArch.			
<b>4999</b>	<b>Design Studio for Thesis</b>	<b>U</b>	<b>6</b>
Topical research/design projects in architecture. Prereq: Permission of instructor.			
<b>4999H</b>	<b>Architecture Honors Design Studio</b>	<b>U</b>	<b>6</b>
Topical research/design projects in architecture. Honors section. Prereq: Honors standing, and major within the Knowlton School of Architecture. Not open to students with credit for 784H.			
<b>5110</b>	<b>History of Architecture I</b>	<b>U G</b>	<b>4</b>
History of architecture from ancient to contemporary: historical inquiry, physical and cultural influences, theories, and analytical techniques. Continues as 5120. Prereq: Not open to students with credit for 600 and 601.			
<b>5110E</b>	<b>History of Architecture I</b>	<b>U G</b>	<b>4</b>
History of architecture from ancient to contemporary: historical inquiry, physical and cultural influences, theories, and analytical techniques. Prereq: Honors standing. Not open to students with credit for 600 and 601.			
<b>5120</b>	<b>History of Architecture II</b>	<b>U G</b>	<b>4</b>
History of architecture from ancient to contemporary: historical inquiry, physical and cultural influences, theories, and analytical techniques. Continuation of 5110. Prereq: Not open to students with credit for 602.			
<b>5120E</b>	<b>History of Architecture II</b>	<b>U G</b>	<b>4</b>
History of architecture from ancient to contemporary: historical inquiry, physical and cultural influences, theories, and analytical techniques. Continuation of 5110. Prereq: Honors standing. Not open to students with credit for 602.			
<b>5130</b>	<b>History of Architecture III</b>	<b>U G</b>	<b>3</b>
This course provides a survey of global architecture and its theoretical underpinnings from the mid-twentieth century to the present.			
<b>5191</b>	<b>Professional Experience in Architecture</b>	<b>U G</b>	<b>0</b>
Documentation of work experience in the field of architecture or suitable related areas. Prereq: Permission of instructor. Repeatable to a maximum of 6 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in Architecture</b>	<b>U G</b>	<b>1 - 15</b>
For group-based special studies in architecture within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5210</b>	<b>Forms of Architectural Theory</b>	<b>U G</b>	<b>3</b>
Survey of architectural theory that reviews the history of architecture while searching for reinterpretations, strategies, structures, and precedents. Prereq: 5110 and 5120 (600, 601, and 602), or permission of instructor. Not open to students with credit for 610.			
<b>5290</b>	<b>Topics in Architectural Theory</b>	<b>U G</b>	<b>3</b>
Investigation of topics in architectural theory. Prereq: Enrollment in Architecture major, or permission of instructor. Repeatable.			

<b>5290.02</b>	<b>Topics in Architectural Theory</b>	<b>U G</b>	<b>1½</b>
Investigation of topics in architectural theory. Prereq: Enrollment in Arch major, or permission of instructor. Repeatable.			
<b>5510</b>	<b>Building Construction I</b>	<b>U G</b>	<b>3</b>
Introduction to construction materials and techniques. Continues as 5520. Prereq: Not open to students with credit for 626 or 627.			
<b>5520</b>	<b>Building Construction II</b>	<b>U G</b>	<b>3</b>
Introduction to construction materials and techniques. Continuation of 5510. Prereq: Not open to students with credit for 628.			
<b>5590</b>	<b>Topics in Building Technology</b>	<b>U G</b>	<b>3</b>
Investigation of topics in building technology. Prereq: Enrollment in Architecture major, or permission of instructor. Repeatable.			
<b>5590.01</b>	<b>Topics in Building Technology</b>	<b>U G</b>	<b>1½</b>
Investigation of topics in building technology. Prereq: Enrollment in Knowlton School of Architecture major, or permission of instructor. Repeatable.			
<b>5590.02</b>	<b>Topics in Building Technology</b>	<b>U G</b>	<b>1½</b>
Investigation of topics in building technology. Prereq: Enrollment in Knowlton School of Architecture major, or permission of instructor. Repeatable.			
<b>5610</b>	<b>Architectural Representation I</b>	<b>U G</b>	<b>3</b>
Introduction to architectural representation techniques. Continues as 5620. Prereq: Enrollment in a major within the Knowlton School of Architecture. Concur: 2410 (for students pursuing a B.S. in Arch). Not open to students with credit for 271 or 272.			
<b>5620</b>	<b>Architectural Representation II</b>	<b>U G</b>	<b>3</b>
Introductions to architectural representation techniques. Continuation of 5610. Prereq: 5610, or both 271 and 272. Concur: 2420 (for students pursuing a B.S. in Arch). Not open to students with credit for 273.			
<b>5710</b>	<b>Introduction to Architectural Structures I</b>	<b>U G</b>	<b>4</b>
Statics, strength of materials, and structural systems: principles, elements, concepts. Prereq: Math 1118 (117) or 1151 or above, and Physics 1200 or above; or Grad standing in Arch; or permission of instructor. Not open to students with credit for 426, 616, 617, or 618.			
<b>5798</b>	<b>Study Tour</b>	<b>U G</b>	<b>1 - 15</b>
Group international and domestic travel programs. Opportunities tailored to complement the classroom experience. Repeatable to a maximum of 45 cr hrs or 3 completions.			
<b>5810</b>	<b>Introduction to Environmental, Mechanical, and Electrical Systems in Architecture</b>	<b>U G</b>	<b>3</b>
Introduction to environmental issues and building service systems for architecture. Prereq: Math 1118 (117) or 1151 or above, and Physics 1200; or Grad standing in Arch; or permission of instructor. Not open to students with credit for 661 or 662.			
<b>5880</b>	<b>Interdepartmental Seminar</b>	<b>U G</b>	<b>1 - 15</b>
Interdepartmental seminar; topics to be announced. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in LArch and CRPlan.			
<b>5960</b>	<b>Design Competition</b>	<b>U G</b>	<b>1 - 6</b>
Learn how to work in interdisciplinary teams to develop design proposals to solve problems in the natural or built environment. Prereq: Jr, Sr, or Grad standing. Repeatable to a maximum of 9 cr hrs or 3 completions. Cross-listed in CRPlan and LArch.			
<b>6194</b>	<b>Graduate Group Studies in Architecture</b>	<b>G</b>	<b>1 - 15</b>
For group-based special studies in architecture within the frame of an instructor guided course. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>6210</b>	<b>Introduction to Contemporary Architecture</b>	<b>G</b>	<b>3</b>
This course provides a foundation for the study of architecture as a profession and a discipline. It examines the relations between buildings and the historical, conceptual, and cultural arguments with which they are associated and the social implications of design decisions, particularly those related to issues of diversity and equity. Prereq: Enrollment in Master of Architecture Program.			
<b>6410</b>	<b>Accelerated Architectural Design I</b>	<b>G</b>	<b>6</b>
Architectural design with an emphasis on form and technique. Continues as 6420. Prereq: Acceptance in the Master of Architecture Graduate Program. Not open to students with credit for 641 or 642.			
<b>6420</b>	<b>Accelerated Architectural Design II</b>	<b>G</b>	<b>6</b>
Architectural design with an emphasis on form and technique. Continuation of 6410. Prereq: 6410, or 641 and 642. Not open to students with credit for 643.			
<b>6710</b>	<b>Architectural Structures II</b>	<b>G</b>	<b>3</b>
Statics, strength of materials, and structural systems: principles, elements, systems. Prereq: Grad standing. Not open to students with credit for 618 or 724.			

<b>6810</b>	<b>Environmental, Mechanical, and Electrical Systems in Architecture II</b>	<b>G</b>	<b>3</b>
Qualitative and quantitative aspects of environmental issues and building service systems for architecture. Prereq: Grad standing. Not open to students with credit for 663.			
<b>7193</b>	<b>Graduate Independent Studies in Architecture</b>	<b>G</b>	<b>1 - 15</b>
For students who wish to pursue special independent studies in architecture with the guidance of an advisor/instructor. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>7194</b>	<b>Graduate Group Studies in Architecture</b>	<b>G</b>	<b>1 - 15</b>
For group-based special studies in architecture within the frame of an instructor guided course. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>7220</b>	<b>Architectural Theory II</b>	<b>G</b>	<b>3</b>
Investigations in architectural theory. Continuation of 7210. Prereq: Grad standing. Concur: 7420. Not open to students with credit for 803.01.			
<b>7310</b>	<b>Practice of the Design Professions</b>	<b>G</b>	<b>3</b>
Legal, financial, technical, and ethical issues in architectural practice. Prereq: Enrollment in Master of Architecture Program. Not open to students with credit for 751 or 752.			
<b>7410</b>	<b>Advanced Architectural Design I</b>	<b>G</b>	<b>6</b>
Architectural design with an emphasis on materiality and organization. Prereq: 6420 (643), or Enrollment in the Master of Architecture Graduate Program with advanced standing. Not open to students with credit for 841 or 842.			
<b>7420</b>	<b>Advanced Architectural Design II</b>	<b>G</b>	<b>8</b>
Architectural design with an emphasis on materiality and organization. Continuation of Arch 7410. Prereq: 7410 (841). Not open to students with credit for 844.01.			
<b>8210</b>	<b>Master Practitioner Seminar</b>	<b>G</b>	<b>1 - 3</b>
Contemporary strategies in architectural practice and criticism as articulated by contemporary architects, theoreticians, and historians. Prereq: Master of Architecture student in third year of program. Repeatable to a maximum of 3 or hrs or 2 completions.			
<b>8220</b>	<b>Master Project Seminar</b>	<b>G</b>	<b>3</b>
Articulation of an architectural position that accounts for design production, disciplinary concerns, and cultural forces. Prereq: Enrollment in Master of Architecture Program.			
<b>8410</b>	<b>Advanced Architectural Design III</b>	<b>G</b>	<b>8</b>
Advanced topics in architectural design. Prereq: 7420 or 844.01. Not open to students with credit for 844.02 or 844.03.			
<b>8420</b>	<b>Advanced Architectural Design IV</b>	<b>G</b>	<b>8</b>
Advanced topics in architectural design. Prereq: 8410 or 844.02. Not open to students with credit for 844.04.			

## Art

<b>2000</b>	<b>Encountering Contemporary Art</b>	<b>U</b>	<b>3</b>
In this class, students will explore how and why contemporary artists make the work they do within a globalized art world. Through discussions, readings, virtual or in-person art excursions and related assignments, participants will apply critical written, oral, and visual communication skills as they analyze, interpret and respond to significant works of art, their contexts and histories.			
<b>2100</b>	<b>Beginning Drawing</b>	<b>U</b>	<b>3</b>
Students will explore fundamental freehand drawing techniques with a range of drawing methods, media and concepts; emphasis on drawing from observation and expressive experimentation. Students will apply written, oral and visual communication skills as they evaluate, interpret and respond to significant works of art and their own expressive goals. This course is available for EM credit. GE VPA course.			
<b>2100E</b>	<b>Beginning Drawing</b>	<b>U</b>	<b>3</b>
Students will explore fundamental freehand drawing techniques with a range of drawing methods, media and concepts; emphasis on drawing from observation and expressive experimentation. Students will apply written, oral and visual communication skills as they evaluate, interpret and respond to significant works of art and their own expressive goals. GE VPA course.			
<b>2200</b>	<b>Real and Recorded Time</b>	<b>U</b>	<b>3</b>
Students will engage in informed observations, explorations and communication through time-based media methods and tools as a practical and theoretical foundation for creating original artworks in video, sound, installation, performance and screen.			

<b>2300</b>	<b>Two-Dimensional Studies</b>	<b>U</b>	<b>3</b>
Students will create aesthetic and interpretive studies exploring organizational elements and principles of 2D composition, visual perception, critical thinking, invention and material experimentation as they pertain to art practice. Students will advance written, oral and visual communication skills as they interpret and respond to significant works of art and their own expressive goals. This course is available for EM credit. GE VPA course.			
<b>2300E</b>	<b>Two-Dimensional Studies</b>	<b>U</b>	<b>3</b>
Students will create aesthetic and interpretive studies exploring organizational elements and principles of 2D composition, visual perception, critical thinking, invention and material experimentation as they pertain to art practice. Students will advance written, oral and visual communication skills as they interpret and respond to significant works of art and their own expressive goals. GE VPA course.			
<b>2400</b>	<b>3-Dimensional Art</b>	<b>U</b>	<b>3</b>
Basic concepts of three-dimensional art focusing on structure with the organization of space and form, using a variety of materials, processes, tools. This course is available for EM credit.			
<b>2555</b>	<b>Introduction to Digital Photography and Contemporary Issues</b>	<b>U</b>	<b>3</b>
Students will learn fundamental digital camera techniques and explore contemporary and historical issues in photography including the relationships between technique, concept, and aesthetics as well as the relationship between images, identity formation, and larger social structures. Prereq: Not open to students with credit for 3555. GE VPA course.			
<b>2555H</b>	<b>Introduction to Digital Photography and Contemporary Issues</b>	<b>U</b>	<b>3</b>
Students will learn fundamental digital camera techniques and explore contemporary and historical issues in photography including the relationships between technique, concept, and aesthetics as well as the relationship between images, identity formation, and larger social structures. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 3555H. GE VPA course.			
<b>2990</b>	<b>BFA Portfolio Review</b>	<b>U</b>	<b>0</b>
Successful BFA portfolio review. Prereq: 2000 (200), 2100 (205), 2200 (208), 2300 (206), 2400 (207), and one core course in student's proposed area of concentration. Repeatable to a maximum of 2 completions. This course is graded S/U.			
<b>3000</b>	<b>Digital Image Manipulation</b>	<b>U</b>	<b>3</b>
Students learn to use Adobe Photoshop and Illustrator software while creating digital media artwork and gaining knowledge of digital artists. Experiences include image capture, generation, manipulation, interpretation, critique, working with the fair use principle, and professional artistic output. Prereq: Not open to students with credit for 2500.			
<b>3001</b>	<b>Internet Art</b>	<b>U</b>	<b>3</b>
Integration of image, video, animation and audio for the creation of internet art. Issues of tactical media, identity construction and digital aesthetics emphasized. Prereq: 2500 (350). Not open to students with credit for 451. Repeatable to a maximum of 6 or hrs.			
<b>3002</b>	<b>Intro to Ceramics: Structure</b>	<b>U</b>	<b>3</b>
Introduction to Ceramic Structures; lab practices with various modeling and potter's wheel techniques with lectures covering a broad survey of structural ceramics from brick to tile to sculpture. Prereq: Not open to students with credit for 2502. GE VPA course.			
<b>3003</b>	<b>Introduction to Glass Art</b>	<b>U</b>	<b>3</b>
Introduction to skills used in molten glass forming, including: gathering, hot sculpting, and blowing. Studio practice is further expanded by experimentation with glass kiln methods. Emphasis on the development of original artworks. Prereq: Not open to students with credit for 2503. Repeatable to a maximum of 6 or hrs.			
<b>3004</b>	<b>Life Studio Drawing I</b>	<b>U</b>	<b>3</b>
Students use a wide range of materials and processes to make drawings based on all aspects of life: the human figure, plants, animals, landscapes, interior spaces, etc. Students practice, appreciate and interpret drawing in relation to various traditions and as a basis for individual development. Prereq: 2100. Not open to students with credit for 2504. Repeatable to a maximum of 6 or hrs.			
<b>3005</b>	<b>Photography II: Introduction to Darkroom</b>	<b>U</b>	<b>3</b>
Students will explore and learn analogue darkroom processes including manual 35mm camera techniques, black and white film development, and archival silver gelatin printing methods. Students will gain knowledge of historical and contemporary issues in photography and develop verbal and written language skills to critique the construction of images. Limited number of loaner film cameras available. Prereq: 2555 (3555). Not open to students with credit for 4005.			



## 34 Art

<b>3006</b>	<b>Introduction to Relief and Intaglio Printmaking</b>	<b>U</b>	<b>3</b>
Students use a range of traditional processes in relief and intaglio, exploring the dynamics of their applications in the creation of unique works in print media. Students will apply oral and visual communication skills as they evaluate, interpret and respond to significant works of art, the work of their peers, and their own expressive goals. 14 Weeks AU SP, 7 Weeks SU. Prereq: 2100 or 2300. Not open to students with credit for 2516.			
<b>3009</b>	<b>Film/Video I: Technologies and Analysis</b>	<b>U</b>	<b>3</b>
Course is designed as an intro to the fundamental concepts, language, and technologies needed to work in video, grounded in critical and historical context. While the lessons learned in this class will apply broadly to all moving-image work, the focus of the work will be on fine arts approaches to video. Students will work on a series of very short projects throughout the semester. Prereq: Not open to students with credit for 5501.			
<b>3012</b>	<b>Intro to Ceramics: Form and Surface</b>	<b>U</b>	<b>3</b>
Introduction to Utilitarian uses of Ceramics; lab practices with various modeling and potter's wheel techniques with lectures covering a broad survey of ceramic form and surface, both historic and contemporary. Prereq: Not open to students with credit for 2602.			
<b>3014</b>	<b>Visual Studies: Color</b>	<b>U</b>	<b>3</b>
Art 3014 Color is an introduction to seeing and using color for all disciplines. Projects deal with color organization, phenomena, and interaction. This course will nurture students' visual sensitivity to color behavior and color relationships in works of art and natural perception. You will also learn and practice effective methods of critical evaluation of works of art with respect to color. Prereq: 2000, 2100, 2300, or 3004 (2504). Not open to students with credit for 2514.			
<b>3016</b>	<b>Printmaking - Relief</b>	<b>U</b>	<b>3</b>
The practice and examination of several modes of artistic expression in the relief processes of printmaking. Prereq: 162, 170, 172, 182, 260, and 270 (prior to 2003), or Art 375 (after 2003); and HistArt 2001, 2002, 210, 211, 212, 213, or 216. Not open to students with credit for 476 and 376.			
<b>3017</b>	<b>Introduction to Sculpture</b>	<b>U</b>	<b>3</b>
An introduction to the principles of sculpture, emphasizing basic forming processes and materials. Includes traditional and non-traditional sculpture making concepts, processes and materials through additive, subtractive, and assemblage sculpture making processes. Prereq: 2400, or permission of instructor. Not open to students with credit for 2507.			
<b>3024</b>	<b>Painting I</b>	<b>U</b>	<b>3</b>
Students explore the dynamics of painting. Students make paintings using a variety of approaches with attention to color, light, form, paint application, space and composition. Students practice, appreciate and interpret painting as related to various traditions and as a basis for individual development. Prereq: Not open to students with credit for 2524.			
<b>3026</b>	<b>Printmaking - Serigraphy</b>	<b>U</b>	<b>3</b>
The practice and examination of several modes of artistic expression in the serigraphic processes of printmaking. Prereq: 3016, and 162, 170, 172, 182, 260, and 270 (pre 2003) or 375 (post 2003), and HistArt 210, 211, 212, 213, 216, 2001, or 2002. Not open to student with credit for 375 or 477.			
<b>3036</b>	<b>Printmaking - Intaglio</b>	<b>U</b>	<b>3</b>
The practice and examination of several modes of artistic expression in intaglio processes of printmaking. Prereq: 3006, or 162, 170, 172, 182, 260, and 270 (pre 2003), or 375 (post 2003), and HistArt 210, 211, 212, 213, 216, 2001, or 2002. Not open to students with credit for 375 or 478.			
<b>3046</b>	<b>Printmaking - Lithography</b>	<b>U</b>	<b>3</b>
The practice and examination of several modes of artistic expression in lithographic processes of printmaking. Prereq: 3016, or 162, 170, 172, 182, 260, and 270 (pre 2003), or 375 (post 2003), and HistArt 210, 211, 212, 213, 216, 2001, or 2002. Not open to students with credit for 375 or 479.			
<b>3053</b>	<b>Glass Basics: Blowing &amp; Kiln Forming</b>	<b>U</b>	<b>3</b>
This course is designed to give the student a solid foundation in multiple aspects of glassmaking. Through technical demonstrations and hands-on experience students will be exposed to the glass construction methods ranging from cold (cutting, grinding and polishing), warm (kiln forming) and hot (blowing and sculpting). Prereq: 2000, and 2100 or 2200, or permission of instructor. Not open to students with credit for 2553.			
<b>3054</b>	<b>Painting II</b>	<b>U</b>	<b>3</b>
Students explore a variety of painting mediums emphasizing technical, historical and conceptual fundamentals of constructing paintings or 'picture-objects.' Students manipulate spatial and thematic pictorial relationships through painting on various surfaces with a variety of processes and begin to develop the ability to pursue individualized research, processes, themes, and aspirations. Prereq: 3024.			

<b>3056</b>	<b>Introduction to Lithography and Silkscreen Printmaking</b>	<b>U</b>	<b>3</b>
Students use a range of traditional processes in lithography and silkscreen printing, exploring the dynamics of their application in the creation of unique works in print media. Students will apply oral and visual communication skills as they evaluate, interpret and respond to significant works of art, the work of their peers, and their own expressive goals. 14 Weeks AU SP, 7 Weeks SU. Prereq: 2100 or 2300. Not open to students with credit for 2526.			
<b>3101</b>	<b>3D Modeling Sculpture</b>	<b>U</b>	<b>3</b>
Students learn, practice, and utilize 3D modeling software for generation of form, character, and environment. Includes conceptualization, development, and creation of digital assets for output to formats such as digital prints, 3D rapid prototyping, laser cutters and/or CNC mills. Prereq: 3000. Repeatable to a maximum of 6 cr hrs.			
<b>3104</b>	<b>Expanded Drawing</b>	<b>U</b>	<b>3</b>
Students expand their definition of drawing by exploring an array of contemporary, historical and conceptual ideas. Students make drawings using a variety of methods and materials, from archival to ephemeral. Students manipulate spatial and thematic pictorial relationships. Students begin to develop the ability to identify and pursue individualized research, processes, themes and aspirations. Prereq: 3004 or 3024.			
<b>3107</b>	<b>Life Sculpture</b>	<b>U</b>	<b>3</b>
Aspects of the human form studied in relation to the materials of sculpture; experimentation in a range of materials: clay, wax, cement, and plaster. Prereq: 2300 and 3507, or 207 and 307. Not open to students with credit for 482.			
<b>3191</b>	<b>Internship</b>	<b>U</b>	<b>1 - 3</b>
A cooperative education or internship assignment conducted under the supervision of a faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>3</b>
Group studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>3201</b>	<b>Holography I</b>	<b>U</b>	<b>3</b>
The basic technique of three-dimensional image making; construction of a diode laser and use of this device to make holograms. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>3201H</b>	<b>Holography I</b>	<b>U</b>	<b>3</b>
The basic technique of three-dimensional image making; construction of a diode laser and use of this device to make holograms. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs. GE VPA course. Cross-listed in Physics.			
<b>3307</b>	<b>Sculpture: Wood Construction</b>	<b>U</b>	<b>3</b>
In Art 3307 students will explore various methods of fabrication and construction to make both functional and expressive works out of wood. This course will proceed through basic introduction exercises and then 2 conceptually based projects, one that highlights additive techniques and one that focuses on the human body. Prereq: 2300. Not open to students with credit for 3007.			
<b>4002</b>	<b>Intermediate Ceramics: Architectonics</b>	<b>U</b>	<b>3</b>
Intermediate course focusing on the Architectural Ceramics; lab practices with various modeling and construction techniques with lectures covering a broad survey of the range of Architectural Ceramics, from structure to cladding to interior and exterior scale. Prereq: 3002 (2502) or 3012 (2602). Not open to students with credit for 3502.			
<b>4004</b>	<b>Special Topics: Drawing</b>	<b>U</b>	<b>3</b>
Special topics in intermediate to advanced drawing materials and processes for personal expression with emphasis on development of analytical and critical skills. Prereq: 3104, or Art 470 (after Au Qtr 2003), or Art 370 (prior to Au Qtr 2003). Repeatable to a maximum of 6 cr hrs.			
<b>4006</b>	<b>Upper Level Printmaking: Intaglio + Relief</b>	<b>U</b>	<b>3</b>
Students practice/examine individual development and artistic creation through advanced exploration of intaglio & relief printmaking. They begin to develop the ability to identify/pursue individualized research, processes, themes and aspirations while they interpret/respond to significant works of art, work of their peers, and their own expressive goals through rigorous production and critique. Prereq: 3006. Repeatable to a maximum of 9 cr hrs.			
<b>4007</b>	<b>Sculpture: Topics in Experiential Making: Structure, Space, and Material</b>	<b>U</b>	<b>3</b>
Exploration of a range of technical and conceptual concerns of Sculpture using primary materials with a focus on research and experimentation. Metal in AU, Wood in SP. Prereq: 2400 and 3017 (2507). Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>4009</b>	<b>Film/Video II: Experimental Strategies</b>	<b>U</b>	<b>3</b>
This course is designed as an overview of a broad range of strategies and issues unique to the practice sometimes labeled "experimental film," avant-garde cinema," or "video art." Intermediate theory and practice of creating film/video artwork. Emphasis on personal expression and experimental approaches. Prereq: 3009 or Mvnglmg 2201 or 2202, or permission of instructor. Not open to students with credit for 5551.			

<b>4012</b>	<b>Intermediate Ceramics: Utility and Performance</b>	<b>U</b>	<b>3</b>
Intermediate course focusing on the utilitarian uses of Ceramics; lab practices with various modeling and potter's wheel techniques with lectures covering a broad survey of the broad range of use, from a cup to a tool to performative gestures. Prereq: 3002 (2502) or 3012 (2602). Not open to students with credit for 3602.			
<b>4014</b>	<b>Advanced Painting and Drawing</b>	<b>U</b>	<b>3</b>
This course is designed to assist and guide independent work. Each term will focus on special topics in painting/drawing, with a wide emphasis upon current directions, new media, techniques, social issues. Students will be encouraged to explore the use of a wide range of materials in experimental approaches to drawing/painting. Individual work will be augmented by lectures/discussions/field trips. Prereq: 3024 and 3054. Repeatable to a maximum of 9 cr hrs.			
<b>4056</b>	<b>Upper Level Printmaking: Lithography + Silkscreen</b>	<b>U</b>	<b>3</b>
Students practice/examine individual development and artistic creation through advanced exploration of lithography & silkscreen printmaking. They begin to develop the ability to identify/pursue individualized research, processes, themes and aspirations while they interpret and respond to significant works of art, work of peers, and their own expressive goals through rigorous production/critique. Prereq: 3056. Repeatable to a maximum of 9 cr hrs.			
<b>4101</b>	<b>Moving Image Art</b>	<b>U</b>	<b>3</b>
The creation of 2D animations through the generation, manipulation, and montage of multiple media elements such as drawings, video, and audio. Students gain hands-on experience with software sequencing tools and knowledge of the context of time-based computer imaging within a studio art practice. Prereq: 3000 (2500) or 3101. Repeatable to a maximum of 6 cr hrs.			
<b>4104</b>	<b>Life Drawing Studio II</b>	<b>U</b>	<b>3</b>
Intermediate to advanced level course focusing on issues of the figure. Prereq: 3104, or Art 470 (Au Qtr 2003 and after), or Art 370 (prior to Au Qtr 2003). Repeatable to a maximum of 6 cr hrs.			
<b>4201</b>	<b>New Media Robotics</b>	<b>U</b>	<b>3</b>
Students learn component level electronics and programming languages on microcontrollers to create kinetic and interactive art. Digital control of objects, projections, and sound allow for responsive environments, wearables, and multimedia experiences. Repeatable to a maximum of 6 cr hrs.			
<b>4401</b>	<b>Computer Animation</b>	<b>U</b>	<b>3</b>
Students learn and practice the concepts, aesthetics and processes of 3D computer animation. Conceptualizing, producing and integrating 3D renders and sound, with awareness of cinematography and narrative, will culminate in the completion of computer animations. Prereq: 3000 (2500) or 3101, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4503</b>	<b>Intermediate Glass Topics</b>	<b>U</b>	<b>3</b>
Exploration of a range of technical and conceptual concerns of Art using glass as a primary material utilizing glass blowing and glass kiln working. Further exploration of a range of hot and cold glass working techniques. Repeatable to a maximum of 6 cr hrs.			
<b>4901</b>	<b>Studio Practice: Art and Technology</b>	<b>U</b>	<b>3</b>
Students gain practical experience in the development and exhibition of independent artwork. Students practice planning, presenting, and discussing their art research in process as well as participating in the critique of the work of their peers. Techniques of exhibition and documentation will be practiced through writing, video, and photography. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4998</b>	<b>UG Scholarship Research / Creative Activity</b>	<b>U</b>	<b>3</b>
Undergraduate research or creative activities in varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4998H</b>	<b>UG Scholarship Research / Creative Activity</b>	<b>U</b>	<b>3</b>
Undergraduate research or creative activities in varying topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4999</b>	<b>Senior Exhibition</b>	<b>U</b>	<b>1</b>
Course will provide seniors in the Department of Art with practical experience in the development of an exhibition of their work and exposure to professional practices for artists. This includes the development of an exhibition proposal, adequate documentation of the student's work, an artist's statement (short and long,) and presentation methods. Prereq: Sr standing, and enrollment in BFA in Art; or permission of instructor.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Senior Honors Thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>5000</b>	<b>Art and Professional Practices Seminar</b>	<b>U G</b>	<b>3</b>
Students explore, practice, and analyze a range of approaches to presenting their artistic practice in visual, oral and written forms. Students explore multiple options, methods and strategies related to career choices and professional development. Students develop a variety of skills to sustain their practice after graduating with their BA or BFA. Prereq: Sr or Grad standing in Art.			

<b>5001</b>	<b>Aspects of Art and Technology I</b>	<b>U G</b>	<b>3</b>
Students explore and practice the technical, aesthetic, and theoretical topics in the field of Art and Technology. Includes interactive installation, biological, surveillance/telepresence, narrative, algorithmic, and performative art. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5004</b>	<b>Drawing Now</b>	<b>U G</b>	<b>3</b>
Students explore drawing through individualized projects and in groups to cultivate, develop and refine ideas, research, experimentation, critical thinking and installation methods. Students explore and interpret contemporary issues in drawing, and develop a body of drawings as well as a drawing practice. Prereq: 4004 or 4104. Repeatable to a maximum of 12 cr hrs.			
<b>5006</b>	<b>Alternative Printmaking</b>	<b>U G</b>	<b>3</b>
Intensive exploration of reproduction technologies including digital, mechanical, and photographic approaches. Emphasis will be placed on the aesthetic of these methods as tools for creative production. Prereq: 4006, 4016, 4026, 4036, 377, 378, or 379, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5007</b>	<b>Advanced Sculpture I</b>	<b>U G</b>	<b>3</b>
Group studio with conceptual and material emphasis led by rotating area faculty. Course may have special topic focus. Prereq: 3207 (481), 3307, and 3507, or 480, 481, and 482. Repeatable to a maximum of 9 cr hrs.			
<b>5009</b>	<b>Film/Video III</b>	<b>U G</b>	<b>3</b>
Students explore in depth one technology or strategy related to experimental film and video art. Topics have included 16mm film, expanded cinema, and cameraless filmmaking. Prereq: 4009, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5019</b>	<b>Film/Video IV</b>	<b>U G</b>	<b>3</b>
Students explore thematic issues within experimental film and video art or in the relationship of those fields to other art forms or modes of filmmaking. Prereq: 4009, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5101</b>	<b>Aspects of Art and Technology II</b>	<b>U G</b>	<b>3</b>
Students explore topical art science relationships while building connections between micro and macro, plants and humans, local and global, anthropocentric and eco-centric. Both scientific and artistic methods are used in creative projects surrounding climate stress & adaptation, biotech/bio art, constructed ecosystems, biomimicry, hyper-nature, symbiosis. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5102</b>	<b>Kiln Building</b>	<b>U G</b>	<b>3</b>
Advanced studies in the design, fabrication, and uses of gas and electric fueled kilns. Practice in welding and electric wiring skills and the various types of firing methods. Prereq: 2502 (340), 2602 (342), 3502 (440), and 3602, or Art 340, 342, and 440; or permission of instructor. Not open to students with credit for 640.			
<b>5115</b>	<b>Photography Studio Lighting</b>	<b>U G</b>	<b>3</b>
Introduction to lighting equipment, principles, and techniques as applied to constructed/directed photography done predominantly in the studio environment. B&W wet lab with limited digital printing. Prereq: 3005 (400) and 5275, or Art 400 and 695.10; or permission of instructor. Concur: 5105. Not open to students with credit for 695.03.			
<b>5126</b>	<b>Advanced Printmaking - Relief and Intaglio</b>	<b>U G</b>	<b>3</b>
An intensive exploration of the relief and intaglio processes as a means for individual expression. Prereq: 4006 (476) and 4026 (478), or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>5193.20</b>	<b>Individual Studies - Ceramics</b>	<b>U G</b>	<b>3</b>
Advanced study for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5193.30</b>	<b>Individual Studies - Glass</b>	<b>U G</b>	<b>3</b>
Advanced study for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5193.50</b>	<b>Individual Studies - Photography</b>	<b>U G</b>	<b>3</b>
Advanced study for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5193.60</b>	<b>Individual Studies - Printmaking</b>	<b>U G</b>	<b>3</b>
Advanced study for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5193.70</b>	<b>Individual Studies - Sculpture</b>	<b>U G</b>	<b>3</b>
Advanced study for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			

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<b>5194.20</b>	<b>Group Studies - Ceramics</b>	<b>U G</b>	<b>3</b>
Advanced ceramic studio work developed in consultation with and under close supervision of the instructor. Prereq: Permission of instructor. Not open to students with credit for 691.03. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5194.40</b>	<b>Group Studies - Painting</b>	<b>U G</b>	<b>3</b>
Group studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5194.70</b>	<b>Group Studies - Sculpture</b>	<b>U G</b>	<b>3</b>
Group studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5202</b>	<b>Mold Making</b>	<b>U G</b>	<b>3</b>
Advanced studies in the design, fabrication, and uses of models and molds. Utilizing plaster casting, rubber, and other alternative mold making material to explore the process of prototyping and generating multiples. Prereq: 2502 (340), 2602 (342), and 3502 and 3602, or 440 and 442; or permission of instructor. Not open to students with credit for 641.			
<b>5205</b>	<b>Large Format Photography</b>	<b>U G</b>	<b>3</b>
Advanced photography projects with emphasis on aesthetics, mechanics, and psychology of large format photography, including zone system controls. Advanced B&W wet lab experience. Prereq: 5105 and 5115; or permission of instructor. Concur: 5215. Not open to students with credit for 524.			
<b>5215</b>	<b>Social/Documentary Photography</b>	<b>U G</b>	<b>3</b>
Student will engage in an advanced production course with emphasis on the conceptual frameworks underpinning the documentary tradition in historical and contemporary photography. Prereq: 3005 (4005).			
<b>5254</b>	<b>Painting Now</b>	<b>U G</b>	<b>3</b>
Students expand approaches and definitions of painting in relation to the chosen topic for the semester. Topics range from studies in abstraction, figuration, conceptual approaches, materials and techniques, landscape/light/space, installation, etc. Independently and in groups, students challenge themselves to make paintings through rigorous experimentation, research and critical reflection. Prereq: 3054. Repeatable to a maximum of 6 cr hrs.			
<b>5302</b>	<b>Material Science for Artists</b>	<b>U G</b>	<b>3</b>
Advanced studio focused on geologic and chemical earth science as it pertains to art. Safe and efficient testing habits will explore applications such as clay and glaze formulation. Parallels will be drawn in metals, glass, paper, and paint. Prereq: 2502 (340), 2602 (342), and 3502 and 3602, or 440 and 442; or permission of instructor. Not open to students with credit for 640 and 644.			
<b>5335</b>	<b>Digital Imaging: Input/Output</b>	<b>U G</b>	<b>3</b>
Exploration of the use of digital technologies in creating and printing images with emphasis on aesthetic content and excellent craft. Prereq: 5205 (524) and 5215 (695.04), or permission of instructor. Concur: 5225. Not open to students with credit for 695.07.			
<b>5338</b>	<b>Digital Input/Output for Photographers</b>	<b>U G</b>	<b>3</b>
Learning to control means of input, manipulation while in and output from the computer and encourage the creation of new work. Prereq: Jr standing, and enrollment in Art major. Not open to students with credit for 695.07.			
<b>5346</b>	<b>Advanced Printmaking - Lithography and Screenprinting</b>	<b>U G</b>	<b>3</b>
An intensive exploration of the lithographic and screenprinting processes as means for individual expression. Prereq: 4016 (477) and 4036 (479), or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>5402</b>	<b>Ceramic Art History</b>	<b>U G</b>	<b>3</b>
Advanced ceramic course designed specifically to give the student an understanding of historical forms and technical processes. Prereq: 2502 (340), 2602 (342), 3502 (440), or 3602 (442), or permission of instructor. Not open to students with credit for 647.			
<b>5445</b>	<b>Alternative Processes in Photography</b>	<b>U G</b>	<b>3</b>
Advanced production and study of antique and alternative processes in photography such as non-silver emulsions, through the creation of a cohesive body of work. Prereq: 5225, 5235, 695.07, or 695.08; or written permission of instructor. Concur: 4995 or 690. Not open to students with credit for 695.06.			
<b>5502</b>	<b>Special Projects - Ceramics</b>	<b>U G</b>	<b>3</b>
Advanced ceramic studio work developed in consultation with and under close supervision of the instructor. Prereq: 2502, 2602, 3502, 3602, 340, 342, 440, or 442; or permission of instructor. Not open to students with 20 qtr cr hrs for 645. Repeatable to a maximum of 9 cr hrs.			

<b>5558</b>	<b>Book Arts</b>	<b>U G</b>	<b>3</b>
Exploration of the history and aesthetics of handmade artist books with emphasis on structure, sequence, and the relationship of image to text. Prereq: Sr standing in Art, or written permission of instructor. Not open to students with credit for 695.05.			
<b>5591</b>	<b>Independent Studio - Art and Technology</b>	<b>U G</b>	<b>3</b>
Advanced studio practice in art and technology. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5592</b>	<b>Independent Studio - Ceramics</b>	<b>U G</b>	<b>3</b>
Advanced ceramic studio work developed in consultation with and under close supervision of the instructor. Prereq: Permission of instructor. Not open to students with credit for 691.03. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5593</b>	<b>Independent Studio - Glass</b>	<b>U G</b>	<b>3</b>
Advanced studio practice in glass art making. Prereq: Permission of instructor. Not open to students with max credit for 691.04. Repeatable to a maximum of 12 cr hrs.			
<b>5594</b>	<b>Independent Studio - Painting/Drawing</b>	<b>U G</b>	<b>3</b>
Advanced studio practice in painting. Repeatable to a maximum of 12 cr hrs.			
<b>5595</b>	<b>Independent Studio - Photography</b>	<b>U G</b>	<b>3</b>
Advanced studio practice in photography. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5596</b>	<b>Independent Studio - Printmaking</b>	<b>U G</b>	<b>3</b>
Advanced studio practice in printmaking. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5597</b>	<b>Independent Studio - Sculpture</b>	<b>U G</b>	<b>3</b>
Advanced studio practice in sculpture. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5797</b>	<b>Study Tour Foreign</b>	<b>U G</b>	<b>3</b>
Specific content, location, semester offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5798</b>	<b>Study Tour Domestic</b>	<b>U G</b>	<b>3</b>
Specific content, location, semester offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5890</b>	<b>Special Topics in Art</b>	<b>U G</b>	<b>3</b>
Open topic that takes into consideration the research interests of current faculty or visiting artists. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5903</b>	<b>Advanced Glass Studio Practice</b>	<b>U G</b>	<b>3</b>
Individual studies in glass art. Prereq: Permission of instructor. Not open to students with credit for 691.04 (to repeat limit). Repeatable to a maximum of 12 cr hrs.			
<b>5995</b>	<b>Imagemakers' Seminar</b>	<b>U G</b>	<b>3</b>
Students expand approaches and definitions of photography in relation to the chosen topic for the semester. Topics may range from but are not limited to studies in abstraction, performance for the camera, documentary, conceptual approaches, materials and aesthetics, and the intersections of issues of identity with contemporary photographic practices. Prereq: 3005 (4005), or permission of instructor.			
<b>6008</b>	<b>Directed Studies in Studio Art</b>	<b>G</b>	<b>1 - 3</b>
Independent advanced studio practice. Prereq: Grad standing in Art. Repeatable to a maximum of 21 cr hrs or 12 completions.			
<b>6018</b>	<b>Interdisciplinary Seminar - Practices in Contemporary Art</b>	<b>G</b>	<b>3</b>
An exploration of a broad range of critical, theoretical and professional models for developing an emergent practice of contemporary visual art. Prereq: Grad standing in Art.			
<b>6108</b>	<b>Graduate Teaching Seminar</b>	<b>G</b>	<b>3</b>
Exercises and discussions exploring techniques used in organizing, presenting, and evaluating materials taught in studio art classes with special focus on the process of developing a teaching portfolio, best teaching practices and pedagogy. Prereq: First year Grad standing in Studio Art, or permission of instructor. Not open to students with credit for 896.			
<b>6691</b>	<b>Foundational Studio Practice - Art and Technology</b>	<b>G</b>	<b>1 - 3</b>
Studio practice in Art and Technology. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6692</b>	<b>Foundational Studio Practice - Ceramics</b>	<b>G</b>	<b>1 - 3</b>
Advanced studio practice in ceramics. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			

<b>6693</b>	<b>Foundational Studio Practice - Glass</b>	<b>G</b>	<b>1 - 3</b>
Advanced studio practice in glass. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6694</b>	<b>Foundational Studio Practice - Painting</b>	<b>G</b>	<b>1 - 3</b>
Advanced studio practice in painting. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6695</b>	<b>Foundational Studio Practice - Photography</b>	<b>G</b>	<b>1 - 3</b>
Advanced studio practice in photography. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6696</b>	<b>Foundational Studio Practice - Printmaking</b>	<b>G</b>	<b>1 - 3</b>
Advanced studio practice in printmaking. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6697</b>	<b>Foundational Studio Practice - Sculpture</b>	<b>G</b>	<b>1 - 3</b>
Advanced studio practice in sculpture. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6891</b>	<b>MFA Studio Critique: Art and Tech</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>6892</b>	<b>MFA Studio Critique: Ceramics</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>6893</b>	<b>MFA Studio Critique: Glass</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>6894</b>	<b>MFA Studio Critique: Painting / Drawing</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>6895</b>	<b>MFA Studio Critique: Photography</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>6896</b>	<b>MFA Studio Critique: Printmaking</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>6897</b>	<b>MFA Studio Critique: Sculpture</b>	<b>G</b>	<b>1</b>
Interdisciplinary forum where students develop research skills, learn how to best articulate their artistic production, discuss materials related to their research interests, and critique the work of their peers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7108</b>	<b>Seminar in Studio Art</b>	<b>G</b>	<b>3</b>
Presentations by students, faculty, and visiting artists, with critical discussion emphasizing contemporary issues. Prereq: Grad standing. Repeatable to a maximum of 9 cr hrs.			
<b>7194</b>	<b>Intermediate Group Studies - Art</b>	<b>G</b>	<b>1 - 3</b>
Group studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>7208</b>	<b>Research and Writing for Artists</b>	<b>G</b>	<b>3</b>
A graduate-level seminar emphasizing research and writing strategies for the required MFA thesis as well as other writing that artists may have to undertake.			
<b>7791</b>	<b>Intermediate Studio Practice - Art and Technology</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			

<b>7792</b>	<b>Intermediate Studio Practice - Ceramics</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7793</b>	<b>Intermediate Studio Practice - Glass</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7794</b>	<b>Intermediate Studio Practice - Painting</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7795</b>	<b>Intermediate Studio Practice - Photography</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7796</b>	<b>Intermediate Studio Practice - Printmaking</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7797</b>	<b>Intermediate Studio Practice - Sculpture</b>	<b>G</b>	<b>1 - 3</b>
Graduate level studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7999.01</b>	<b>Research in Art - Thesis Advising</b>	<b>G</b>	<b>1</b>
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>7999.02</b>	<b>Research in Art - Thesis Exhibition</b>	<b>G</b>	<b>1</b>
Research in preparation for Thesis Exhibition. Prereq: Permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7999.03</b>	<b>Research in Art - Thesis Writing</b>	<b>G</b>	<b>1</b>
Research and writing for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies - Art</b>	<b>G</b>	<b>1 - 3</b>
Group studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>8891</b>	<b>Advanced Studio Practice Art and Technology</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8892</b>	<b>Advanced Studio Practice - Ceramics</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Prereq: Permission of instructor. Not open to students with 12 cr hrs for 691.03. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8893</b>	<b>Advanced Studio Practice - Glass</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8894</b>	<b>Advanced Studio Practice - Painting</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8895</b>	<b>Advanced Studio Practice - Photography</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8896</b>	<b>Advanced Studio Practice - Printmaking</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8897</b>	<b>Advanced Studio Practice - Sculpture</b>	<b>G</b>	<b>1 - 3</b>
Advanced graduate studio practice. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			

## Art Education

<b>1600</b>	<b>Art and Music Since 1945</b>	<b>U</b>	<b>3</b>
A survey of the visual arts and music in the western world since 1945, based on live and recorded performances and exhibitions. GE VPA course.			
<b>2100</b>	<b>Introduction to Arts Management</b>	<b>U</b>	<b>3</b>
This Introduction to Arts Management is a survey of non-profit and for profit arts management topics and issues. Students will examine members of the creative sector in various fields within the arts and cultural sector and what their impact is on the global marketplace. Using scholarly articles and various media, students will identify examples of these individuals around the world.			

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<b>2250</b>	<b>Introduction to Art Education</b>	<b>U</b>	<b>3</b>
Ideas, issues, and career possibilities in art education explored through readings, dialogue, and site visitation. Prereq: Not open to students with credit for 225.			
<b>2367.01</b>	<b>Visual Culture: Investigating Diversity &amp; Social Justice</b>	<b>U</b>	<b>3</b>
A study of the artists, the artworks, and art worlds from diverse ethnic cultures in North America. Prereq: English 1110, and Soph standing. Not open to students with credit for 2367.01H. GE writing and comm course: level 2 and VPA and diversity soc div in the US course.			
<b>2367.01H</b>	<b>Visual Culture: Investigating Diversity &amp; Social Justice</b>	<b>U</b>	<b>3</b>
A study of the artists, the artworks, and art worlds from diverse ethnic cultures in North America. Prereq: Honors standing, English 1110, and Soph standing. Not open to students with credit for 2367.01 (367.01) or 367.01H. GE writing and comm course: level 2 and VPA and diversity soc div in the US course.			
<b>2367.02</b>	<b>Writing Art Criticism</b>	<b>U</b>	<b>3</b>
Focuses on critical literacy and writing about contemporary American art by a variety of artists with diverse points of view. Prereq: English 1110, and Soph standing. Not open to students with credit for 367.02. GE writing and comm course: level 2.			
<b>2367.03</b>	<b>Criticizing Television</b>	<b>U</b>	<b>3</b>
A critical analysis of a wide variety of television programs through viewing, discussing, reading, and writing. Prereq: English 1110, and Soph standing. Not open to students with credit for Theatre 2367.03. GE writing and comm course: level 2 and diversity soc div in the US course. Cross-listed in Theatre.			
<b>2520</b>	<b>Digital Artmaking</b>	<b>U</b>	<b>3</b>
Introductory study of digital artmaking through interpreting contemporary artists, constructing a language of art critique, and producing images using graphic design software. GE VPA course.			
<b>2520S</b>	<b>Digital Artmaking</b>	<b>U</b>	<b>3</b>
Introductory study of digital artmaking through interpreting contemporary artists, constructing a language of arts critique, and producing images using graphic design software. Prereq: Not open to students with credit for 252. GE VPA course.			
<b>2550</b>	<b>Introduction to Visual Culture: Seeing and Being Seen</b>	<b>U</b>	<b>3</b>
An introduction to issues of representation, spectacle, surveillance, and voyeurism, explored through a range of visual images and sites. Prereq: Not open to students with credit for 255. GE cultures and ideas and diversity soc div in the US course.			
<b>3680</b>	<b>Exploring the Creative Industry: Arts Issues in the 21st Century</b>	<b>U</b>	<b>3</b>
Explores the relationships within the creative sector; Artistic workforce, contemporary art trends, organizational structure and variety within the industries. Prereq: 2100. Not open to students without credit for 2100 who are also enrolled in the Arts Management program.			
<b>3681</b>	<b>Managing Non-profit Arts Organizations: Balancing Continuity &amp; Change</b>	<b>U</b>	<b>3</b>
Introduces the purposes of non-profit organizations and their functions such as governance, program planning, marketing, and fundraising; encourages critical thinking in managerial decision making through practical assignments. Prereq: 2100. Not open to students without credit for 2100 who are also enrolled in the Arts Management program.			
<b>3690</b>	<b>Arts Entrepreneurship</b>	<b>U</b>	<b>3</b>
This course helps students gain skills toward using creativity and artistry to solve problems and identify their personal sites of expertise as they begin to think about their future careers. Identifying opportunities in the arts can take on aspects of using artistic skill to address social problems, create economic value, and bring aesthetic solutions to social, cultural, and business problems.			
<b>3900</b>	<b>Art &amp; Curriculum Concepts for Teachers</b>	<b>U</b>	<b>2</b>
Problems of teaching in terms of personal knowledge about art, insight into children's art work, and understanding of elementary school curriculum. Prereq: Not open to students with credit for 600. Not open to art education teacher-candidates. Admis Cond course.			
<b>4000</b>	<b>Pedagogies of Critical Multiculturalism in Teaching Visual Culture</b>	<b>U</b>	<b>3</b>
Investigating the interrelationship of social and visual cultural issues and their impact on the curriculum and teaching practice. Prereq: Art Education Licensure students, or permission of instructor. Not open to students with credit for 601 or 605. Admis Cond course.			
<b>4100</b>	<b>Processes of Making and Responding to Art</b>	<b>U</b>	<b>3</b>
Interpreting and writing critically about contemporary art, methods, and strategies that enhance student artmaking. Prereq: Art Education Licensure students, or permission of instructor.			

<b>4189.02</b>	<b>Teaching Practicum: Pre K-12</b>	<b>U</b>	<b>12</b>
Field-based teaching practicum at the prekindergarten through Grade 12 levels. Prereq: Art Education Licensure students, or permission of instructor. Not open to students with credit for 786 or 787. Admis Cond course.			
<b>4191</b>	<b>Internship</b>	<b>U</b>	<b>1 - 9</b>
Students intern at non-public school sites to synthesize and apply what they have learned in the classroom through concentrated practice in the field. Prereq: Jr standing or above, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 9</b>
Individual studies and project work in specified problems in the field of art education. Prereq: Written permission. Not open to students with credit for 493. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 12</b>
Group studies and project work in specified problems of the field of art education. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>4200</b>	<b>Concepts for Planning Art Education Curricula</b>	<b>U</b>	<b>3</b>
Planning for and management of the social and physical environment of art education. Prereq: Art Education Licensure students, or permission of instructor. Not open to students with credit for 607. Admis Cond course.			
<b>4300</b>	<b>History &amp; Philosophy of Art Education, Schools, and Society</b>	<b>U</b>	<b>3</b>
History of the field with an emphasis on major ideas in philosophy and learning theory that affect current trends. Prereq: Art Education Licensure students, or permission of instructor. Not open to students with credit for 603. Admis Cond course.			
<b>4400</b>	<b>Art Education for Children with Special Needs</b>	<b>U</b>	<b>3</b>
Strategies that can be used in teaching art to students with special needs and lesson planning for inclusion. Prereq: Art Education Licensure students, or permission of instructor. Not open to students with credit for 608. Admis Cond course.			
<b>4491</b>	<b>Applied Research</b>	<b>U</b>	<b>1 - 6</b>
Studies in empirical, philosophical, curriculum, and studio problems in art education. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>4495</b>	<b>Seminar on Topical Issues in Art Education</b>	<b>U</b>	<b>1 - 9</b>
Seminar on topical issues in art education. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>4500</b>	<b>Clinical Experience</b>	<b>U</b>	<b>3</b>
Contact with practicum sites and collaborative work with cooperating teachers to plan and deliver instruction. Prereq: Art Education Licensure students, or permission of instructor. Not open to students with credit for 689. Admis Cond course.			
<b>4674</b>	<b>The City As Art</b>	<b>U</b>	<b>3</b>
This course will examine the ways that cities throughout the world integrate arts and culture into their planning, as well as whether being a cultural city can build the brand, draw new residents and attract visitors. We will investigate cultural tourism, urban cultural policy and temporary built culture such as festivals and fairs. Team-taught w/ faculty in CRP. Prereq: Jr or Sr standing. Not open to students with credit for CRP 4674. Cross-listed in City and Regional Planning.			
<b>4740</b>	<b>Docent Training</b>	<b>U</b>	<b>3</b>
Introduces students to theory and techniques of teaching in museum galleries at the Wexner Center for the Arts. Students are trained to lead tours by studying contemporary art, tour planning strategies and interactive techniques. Prereq: Permission of instructor.			
<b>4900</b>	<b>Teaching Seminar</b>	<b>U</b>	<b>3</b>
Concurrent to teaching practicum. Prereq: Art Education Licensure students, or permission of instructor. Admis Cond course.			
<b>4998</b>	<b>Creative Activity in Art Education: Undergraduate Scholarship</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate scholarship. Repeatable to a maximum of 9 cr hrs or 2 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 9</b>
A program of reading and research arranged for each student, with individual conferences and reports and thesis. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 9</b>
A program of reading and research arranged for each student, with individual conferences and reports and honors thesis. Prereq: Honors standing, and permission of instructor. Not open to students with credit for 783H. Repeatable to a maximum of 9 cr hrs or 2 completions. This course is graded S/U.			

<b>5367</b>	<b>Reel Injuns: Identity and Representation</b>	<b>U G</b>	<b>3</b>
Introduces broad range of issues, theories, and practices of visual culture within the gaze of American Indians and how reaction to or rejection shapes indigenous identities, as well as non-Native understandings of American Indians. This course will explore action research practices, historical research methodologies, and critical readings. Prereq: Not open to students with credit for 3367.			
<b>5670</b>	<b>Public Policy and the Arts</b>	<b>U G</b>	<b>3</b>
Introduction to the purposes, rationales, interests, issues, political dynamics, and performance of agency/programs in the U.S. cultural policy system. Prereq: Not open to students with credit for 670.			
<b>5671</b>	<b>Organizational Leadership in the Nonprofit Arts</b>	<b>U G</b>	<b>3</b>
Students will be assisted in enhancing their knowledge and ability to take responsible leadership roles in non-profit arts organizations and as a major constituent of public arts agencies. Prereq: Not open to students with credit for 671.			
<b>5672</b>	<b>Managing Cultural Policy Change</b>	<b>U G</b>	<b>3</b>
Planning and executing strategic change in public arts agencies. Explores implications of shifting from a supply/demand to a value-based cultural policy paradigm. Prereq: Not open to student with credit for 672.			
<b>5674</b>	<b>The Creative Sector and Creative Cities</b>	<b>U G</b>	<b>3</b>
Examines policy experiences of U.S. and other countries pertaining to the composition, workforce, and support systems of the creative industries across non-profit, commercial, community, and embedded settings.			
<b>5675</b>	<b>International Cultural Relations</b>	<b>U G</b>	<b>3</b>
Explores cultural exchange as a policy tool of international cultural engagement, nation branding, and cultural diplomacy. Also considers international festival and exhibitions, cultural trade, and international collaboration.			
<b>5682</b>	<b>Nonprofit Arts Institution Governance and Board Leadership</b>	<b>U G</b>	<b>3</b>
Research-based, practical exploration of nonprofit boards critically examines governance policies and practices; specifically focusing on management, board and staff relations and issues of accountability. Prereq: Not open to students with credit for 782.			
<b>5683</b>	<b>Developing Arts Careers: Positioning Passion</b>	<b>U G</b>	<b>3</b>
Prepares students as entrepreneurs to enter nonprofit, commercial, public and/or academic careers through independent investigation, dossier development, research proposals, and grant writing. Prereq: Not open to students with credit for 683.			
<b>5684</b>	<b>Arts Participation, Cultural Literacy, and Audience Development</b>	<b>U G</b>	<b>3</b>
Building on empirical and theoretical research, this course constructs a framework to understand audience participation, understanding and reception of specific art forms. Prereq: Not open to students with credit for 781.			
<b>5685</b>	<b>Arts/Cultural Organizations: Resource Management &amp; Revenue Streams</b>	<b>U G</b>	<b>3</b>
An analysis of current issues in resource management and revenue streams available to arts & cultural organizations, and its application to marketing and development practice.			
<b>5686</b>	<b>Cultural Program Design, Implementation, and Evaluation</b>	<b>U G</b>	<b>3</b>
Research of program theory, design, and their application implementation.			
<b>5687</b>	<b>The Social World of the Arts</b>	<b>U G</b>	<b>3</b>
We often think about the arts as primarily aesthetic endeavors, but the social world around the creation, production, distribution, and reception of art are key in understanding the role of art and of artists in society. In this class, students will use a sociological lens to examine how individuals and groups create, produce, distribute, and consume art.			
<b>5795</b>	<b>Seminar on Topical Issues in Art Education.</b>	<b>U G</b>	<b>3</b>
Seminar on topical issues in Art Education. Repeatable to a maximum of 30 or hrs.			
<b>5797.01</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Repeatable to a maximum of 15 or hrs or 5 completions.			
<b>5797.02</b>	<b>Exploring Jamaican Arts and Culture</b>	<b>U G</b>	<b>3</b>
Focuses on arts and cultural practices in schools, colleges, museums, and cultural institutions in Jamaica. Students explore and analyze policies, practices, content, and pedagogies of the arts in Jamaica in comparison and contrast with our understandings of such in the United States.			

<b>5797.03</b>	<b>Ireland: Places, Spaces &amp; Earthworks</b>	<b>U G</b>	<b>3</b>
This course offers students an introduction to Neolithic to historic Christian to contemporary Irish material culture. It is designed to use the resources at University College Dublin to develop knowledge through research, critical reading/analysis, and oral and/or visual expression in fostering an understanding of the pluralistic and historic nature of institutions, society, and Irish cultures.			
<b>5798.01</b>	<b>Study Tour: Domestic</b>	<b>U G</b>	<b>1 - 9</b>
Specific content, location, semesters of offering, and prerequisites vary; contact department office for details. Repeatable for differently titled study tours only. Repeatable to a maximum of 27 cr hrs or 3 completions.			
<b>5798.02</b>	<b>Cultural Equity, Arts Policy &amp; Advocacy in Puerto Rico</b>	<b>U G</b>	<b>3</b>
This course is a special course of study for those interested in the impact & role of cultural arts in engaging issues of social justice within communities. Renowned community experts and scholars culturally grounded in the arts, public policy and advocacy will present and engage with students on best practices that have made positive and significant contributions to diverse communities.			
<b>6998</b>	<b>Research for Non-thesis</b>	<b>G</b>	<b>1 - 9</b>
Research for non-thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 27 cr hrs. This course is graded S/U.			
<b>6999</b>	<b>Research for Thesis</b>	<b>G</b>	<b>1 - 9</b>
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions. This course is graded S/U.			
<b>7000.10</b>	<b>Concepts, Theories, and Issues in Art Education</b>	<b>G</b>	<b>2</b>
Review of analytical reading and writing; overview of topics for art education research; graduate faculty research; national and international issues; research resources. Must be taken during the first year of graduate study.			
<b>7000.20</b>	<b>Concepts, Theories, and Issues in Arts/Culture Policy</b>	<b>G</b>	<b>2</b>
Review of analytical reading and writing; overview of topics for arts policy & admin. research; graduate faculty research; national and international issues; research resources. Must be taken during the first year of graduate study.			
<b>7000.30</b>	<b>Issues, Frameworks and Theories for Art Educators</b>	<b>G</b>	<b>3</b>
This course is a required introductory course in Art Education. In this online course, we will critically analyze articles that provide an overview of topics for art education research; graduate faculty research; national and international issues, and research resources.			
<b>7100</b>	<b>Histories and Policies of Arts Education</b>	<b>G</b>	<b>3</b>
Students explore arts/education history while developing skills in researching cultural practices, programs and protocols, and analyzing the impact of arts programs/initiatives and social interventions on citizens and communities. Prereq: Not open to students with credit for 701 or 704.			
<b>7200.10</b>	<b>Introduction to Research Methodologies and Methods</b>	<b>G</b>	<b>3</b>
Introduction to research philosophies, methodologies and methods in arts education, policy, and administration. Prereq: Not open to students with credit for 705.			
<b>7200.20</b>	<b>Overview of Research Planning for Arts Policy &amp; Administration</b>	<b>G</b>	<b>3</b>
Introduction to a range of research resources and methods applicable to APA students including historical, case studies, surveys & interviews. Using the literature to frame research questions, build a conceptual framework and inform research plan. Prereq: Not open to students with credit for 705 or 809.			
<b>7200.30</b>	<b>Overview of Research for Arts Educators</b>	<b>G</b>	<b>3</b>
Introduction to a broad range of qualitative educational research methodologies in the field of art education, mainly in an art teacher's classroom, a museum setting, or community arts space. Includes research terminology and methodologies, data collection methods, and discusses the power of teachers as researchers in their own classrooms. Practices collecting and analyzing data.			
<b>7300</b>	<b>Introduction to Teaching Arts Education at the College Level</b>	<b>G</b>	<b>2</b>
An introduction to theories, methods and issues related to teaching arts education at the college level. Prereq: New or recently reassigned ARTEDUC GTAs, or permission of instructor. Not open to students with credit for 707.			
<b>7604</b>	<b>Teaching of Studio Activities</b>	<b>G</b>	<b>3</b>
Exploration of instructional application of various art materials for educational settings. Prereq: Not open to students with credit for 604.			
<b>7606</b>	<b>Technology and Digital Texts</b>	<b>G</b>	<b>3</b>
Theory and practice of engaging others in technologies and digital texts relative to art education practice. Prereq: Not open to students with credit for 606.			



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<b>7607</b>	<b>Curriculum Planning and Assessment in Art Education</b>	<b>G</b>	<b>3</b>
Introduction to curriculum development including artmaking practices and assessment strategies. Prereq: Not open to students with credit for 604, 607 or 731.			
<b>7681</b>	<b>Arts/Cultural Institutions, Organizational Theories &amp; Management Practice</b>	<b>G</b>	<b>3</b>
Building on organizational theories, this course examines the purpose and function of arts and cultural institutions and current management practices in the creative sector. Prereq: Not open to students with credit for 681.			
<b>7701</b>	<b>Contemporary Theory and Art Education</b>	<b>G</b>	<b>3</b>
Investigation of contemporary theory from an interdisciplinary perspective and the implications for art education.			
<b>7707</b>	<b>Action Research Theory and Practice</b>	<b>G</b>	<b>3</b>
Exploration of action research theories and practices in school, community, and organizational settings.			
<b>7708</b>	<b>Universal Design for Learning: Disability Studies and Art Education</b>	<b>G</b>	<b>3</b>
This course explores Universal Design for Learning in Art Education for the purposes of enhancing the learning experiences of students with disabilities and all learners and makes practical applications to classroom experiences.			
<b>7709</b>	<b>Arts-Based Education Research Approaches</b>	<b>G</b>	<b>3</b>
Survey a range of arts-based research methods in the multiple arts and education fields. Explore/develop and analyze innovations in data gathering, analyses, performance/presentation and publication.			
<b>7710</b>	<b>Experimental Writing in Qualitative Research</b>	<b>G</b>	<b>3</b>
Offers readings, discussion, and practice in writing new texts that expand the conception of qualitative research. Students engage in workshops with peers and established arts-informed writers. Completion of one qualitative research course is recommended but not required for enrollment.			
<b>7711</b>	<b>Designing and Writing Research Proposals</b>	<b>G</b>	<b>3</b>
This course is designed to assist in understanding the nature and purpose of the dissertation proposal as well as the strategies necessary to conceive of it and construct it.			
<b>7725</b>	<b>Re-imagining Research Writing Through Creative Inquiry</b>	<b>G</b>	<b>3</b>
This trans-disciplinary writing seminar encourages graduate researchers to develop a philosophy and practice of writing that reflects a full range of scholarly expression. Beginning with a review of expository writing, students engage with the theory and practice of shaping new ways to conceive of and write scholarly research in their respective disciplines.			
<b>7735</b>	<b>Art Museum History, Theory, and Practices</b>	<b>G</b>	<b>3</b>
Critical examination of the historic and theoretical foundations of art and other museums as an institution, drawing on multiple disciplinary perspectives. Counts toward Museum Education specialization.			
<b>7736</b>	<b>Teaching and Learning in Art Museums</b>	<b>G</b>	<b>3</b>
A theoretical and practical study of teaching and learning in and through museums. Counts toward Museum Education specialization.			
<b>7740</b>	<b>Docent Training</b>	<b>G</b>	<b>3</b>
Introduces students to theory and techniques of teaching in museum galleries at the Wexner Center for the Arts. Students are trained to lead tours by studying contemporary art, tour planning strategies and interactive techniques. Prereq: Permission of instructor.			
<b>7748</b>	<b>Art Museum Education &amp; Administration Practicum</b>	<b>G</b>	<b>3</b>
An examination of the role of education in art museums through an in-depth experience in a museum setting. Counts toward Museum Education specialization.			
<b>7756</b>	<b>Semiotics and Visual Culture</b>	<b>G</b>	<b>3</b>
Traditional and contemporary theories of semiotics applicable to visual culture. Understanding how cultural meanings are created, maintained and habits are shifted.			
<b>7766</b>	<b>Exploring Practices of Meaning Making and Artmaking</b>	<b>G</b>	<b>3</b>
Exploring meaning making practices and artmaking through materiality, play, and affect. Theoretical perspectives derive from Deleuzian philosophy, semiotics, and poststructuralist theory.			
<b>7767</b>	<b>Critical Analysis of Multicultural Art Education</b>	<b>G</b>	<b>3</b>
Investigation and analysis of multicultural theories, issues, and practices for art education. Prereq: Not open to students with credit for 767.			
<b>7775</b>	<b>Social and Cultural Theories in Art and Art Education</b>	<b>G</b>	<b>3</b>
Critical investigation of theoretical, artistic, and pedagogical concepts related to diversity.			
<b>7777</b>	<b>Research to Advocacy</b>	<b>G</b>	<b>3</b>
This course engages practicing arts educators in developing effective advocacy strategies, arguments and approaches grounded in reliable research and assessment measures. Educators clearly communicating these measures can effectively leverage them in persuading administrators, parents and policy makers to energetically support and advance the critical work of arts education.			

<b>7795</b>	<b>Seminar on Topical Issues in Art Education</b>	<b>G</b>	<b>3</b>
Seminar on Topical Issues in Art Education. Repeatable to a maximum of 30 cr hrs.			
<b>7890</b>	<b>Colloquium</b>	<b>G</b>	<b>1½</b>
An interdisciplinary forum of students and faculty for discussing themes selected by graduate students in the Department of Art Education. Repeatable to a maximum of 3 cr hrs or 2 completions. This course is graded S/U.			
<b>8191.01</b>	<b>Internship in Arts Management</b>	<b>G</b>	<b>1 - 9</b>
Supervised professional experience in performing arts, visual arts, literary arts, or museum/historical organization. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8191.02</b>	<b>Art and Cultural Policy Internship</b>	<b>G</b>	<b>1 - 9</b>
Supervised professional experience in government arts or a cultural agency at any level - local, state, regional, national, or international - or within a trade or professional association engaged in arts advocacy. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8191.03</b>	<b>Internship: Engaging with Art Museums &amp; Communities</b>	<b>G</b>	<b>1 - 9</b>
Supervised professional experience within a museum or public gallery that provides educational services. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8191.04</b>	<b>Community Arts Internship</b>	<b>G</b>	<b>1 - 9</b>
Supervised professional experience in a community setting that provides programs addressing arts education. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Individual Studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>3</b>
Group studies for students in specialized programs. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>8798.02</b>	<b>Study Tour Foreign</b>	<b>G</b>	<b>1 - 9</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Foreign. Repeatable for different study tours only. Repeatable to a maximum of 12 cr hrs.			
<b>8911</b>	<b>Research Problems in Art Education</b>	<b>G</b>	<b>1 - 9</b>
Research problems in Art Education. Prereq: Permission of instructor. Repeatable to a maximum of 27 cr hrs or 3 completions.			
<b>8998</b>	<b>Research for Candidacy Examination</b>	<b>G</b>	<b>1 - 9</b>
Research for candidacy examination. Prereq: Permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions. This course is graded S/U.			
<b>8999</b>	<b>Research for Dissertation</b>	<b>G</b>	<b>1 - 9</b>
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions. This course is graded S/U.			

## Arts and Sciences

<b>1100.01</b>	<b>Arts and Sciences Survey: General</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.			
<b>1100.01H</b>	<b>Arts and Sciences Survey: General (Honors)</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Honors standing, or permission of instructor or department. Not open to students with credit for any College Survey 100.XX course. This course is graded S/U.			
<b>1100.02</b>	<b>Arts and Sciences Survey: Special</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.			
<b>1100.03</b>	<b>Arts and Sciences Survey: PASS</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.			

<b>1100.04 Arts and Sciences Survey: Transfer</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.05 Arts and Sciences Survey: Art</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.06 Arts and Sciences Survey: Arts and Humanities</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.07 Arts and Sciences Survey: Biological Sciences</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.09 Arts and Sciences Survey: Design</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.10 Arts and Sciences Survey: Mathematical and Physical Sciences</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.11 Arts and Sciences Survey: Music</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.14 Arts and Sciences Survey: Social and Behavioral Sciences BA</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1100.15 Arts and Sciences Survey: Social and Behavioral Sciences BA/BS</b>	<b>U</b>	<b>1</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of Arts and Sciences academic areas of study and services. Prereq: Permission of department or instructor. Not open to students with credit for any College Survey 100.xx course. This course is graded S/U.		
<b>1101 First or Second Year Seminar</b>	<b>U</b>	<b>1</b>
Seminars on varying topics taught by University faculty. Prereq: Fresh or Soph standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.		
<b>1102H Regional Honors Seminar</b>	<b>U</b>	<b>1</b>
Seminars on varying topics taught by University faculty on regional campuses and intended to provide a common experience for Honors students. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.		
<b>1120.01 Arts Scholars Seminar</b>	<b>U</b>	<b>1</b>
This seminar course is designed for first year arts scholars students and explores arts interests, interdisciplinary opportunities, campus and local community arts connections. Prereq: Enrollment in Arts Scholars Program.		
<b>1120.02 Biological Sciences Scholars Seminar</b>	<b>U</b>	<b>1</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the BIO SCI Scholars experience; resources and opportunities related to the BIO SCI Scholars program theme. Students will explore involvement related to service, research, and preparation for graduate/professional school and careers in the biological sciences. Prereq: Enrollment in Biological Sciences Scholars Program.		
<b>1120.03 Humanities Scholars Seminar</b>	<b>U</b>	<b>1</b>
Designed for the first year Humanities Scholars to explore personal humanities interests, interdisciplinary opportunities, campus and local humanities resources, and cultural topics in the humanities. Prereq: Enrollment in Humanities Scholars Program.		

<b>1120.04 International Affairs Scholars Seminar</b>	<b>U</b>	<b>1</b>
Introduction to major topics and themes in International Affairs; introduction to expectations and guidelines of the IA Scholars Program; overview of university resources and services related to the IA Scholars theme; overview of professional development and potential career paths; connections to and awareness of campus, city, and national resources related to IA Scholars theme. Prereq: Enrollment in International Affairs Scholars Program.		
<b>1120.05 Politics, Society, &amp; Law Scholars Seminar</b>	<b>U</b>	<b>1</b>
This seminar course is designed to explore interdisciplinary opportunities, campus and community resources, personal and professional development, and themes specific to the Politics, Society, and Law Scholars Program. Thematic topics will include but are not limited to those related to Ohio's judicial system, free speech, communication, and conflict. Prereq: Enrollment in Politics, Society, and Law Scholars Program.		
<b>1120.06 STEM Exploration &amp; Engagement Scholars Seminar</b>	<b>U</b>	<b>1</b>
This seminar course is designed for first year Scholars students to explore personal interests, interdisciplinary opportunities, campus and local community resources, and specific theme activities related to STEM Exploration and Engagement Scholars. Prereq: Enrollment in STEM Exploration and Engagement Scholars Program.		
<b>1137.01 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.02 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.03 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.04 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.05 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.06 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.07 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.08 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.09 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.10 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		
<b>1137.11 First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs.		

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<b>1138.28</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.29</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.30</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.31</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.32</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.33</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.34</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.35</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.36</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.37</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.38</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.39</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1138.40S</b>	<b>First-Year Seminar</b>	<b>U</b>	<b>1</b>
Affords first-year students the opportunity for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Prereq: Fresh standing, or permission of instructor. Only one First-Year Seminar per semester allowed. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>1191</b>	<b>Non-Credit Internship</b>	<b>U</b>	<b>0</b>
Internship conducted under the supervision of the employer; enrollment and evaluation coordinated by ASC Career Services. Student is responsible for finding the internship prior to the start of the term. Requires permission to enroll. Prereq: GPA 2.0 or above. Repeatable to a maximum of 6 completions. This course is graded S/U.			

<b>1900</b>	<b>Career Readiness for Arts &amp; Sciences Majors</b>	<b>U</b>	<b>1</b>
Broaden understanding of career fields and learn about how to increase readiness for obtaining work related to career goals. Also covers writing resumes, obtaining internships, and effective strategies for finding employment for after graduation. Prereq: Not open to students with credit for 400.01 or ESCE 2271 (EduPAES 270.01). This course is graded S/U.			
<b>2120</b>	<b>Information Search, Evaluation and Use</b>	<b>U</b>	<b>2</b>
This seven-week course will help you develop skills and habits that will allow you to responsibly find, consume, create, and share information online. Among these habits is the creation of a search strategy, critical evaluation of online sources, and the use of copyrighted materials. We hope you leave this course as an intentional, reflective, and critical consumer of information.			
<b>2121</b>	<b>Academic Online Research</b>	<b>U</b>	<b>2</b>
The purpose of this course is to help you develop skills and habits that will help you to be successful on research assignments in college, as well as situations that require you to use information in your professional, personal, and civic lives. In other words, we hope you leave this course as an intentional, reflective, and critical consumer of information.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual Studies for undergraduate students. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>2194</b>	<b>Interdisciplinary Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of special or interdisciplinary topics at an introductory level. 2194H (honors) may be available. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>2194H</b>	<b>Interdisciplinary Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of special or interdisciplinary topics at an introductory level. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>2400</b>	<b>Conversations on Morality, Politics, and Society</b>	<b>U</b>	<b>3</b>
Students will explore the topic of the COMPAS program from a variety of disciplinary perspectives and be required to attend or to view recordings of the various COMPAS events. GE culture and ideas course.			
<b>2400E</b>	<b>Conversations on Morality, Politics, and Society</b>	<b>U</b>	<b>3</b>
Students explore the COMPAS program topic from a variety of perspectives and attend or view recordings of various COMPAS events. They also complete additional readings, have 5-6 hours of meetings with the instructor, and write a term paper. Prereq: Honors standing, or permission of instructor. GE cultures and ideas course.			
<b>2797.02</b>	<b>Contemporary India</b>	<b>U</b>	<b>3</b>
This interdisciplinary course introduces students to contemporary India, with a focus on the foundational diversities of Indian society, culture, religion, politics, and economy. Students will also critically reflect on how their study abroad has impacted their understanding of India and our contemporary world. GE education abroad course.			
<b>2798.02</b>	<b>Study Tour: Foreign</b>	<b>U</b>	<b>1 - 10</b>
Specific content, location, semesters of offering, and prerequisites vary; contact department office for details. Repeatable for differently titled study tours only. Non GE. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>2798.03</b>	<b>Study Tour: Introduction to the History, Politics, and Culture of Great Britain</b>	<b>U</b>	<b>3</b>
This interdisciplinary study tour introduces students to the History, Politics, and Culture of Great Britain. An examination of certain core British institutions, traditions, and problems mainly through the lens of imaginative literature - especially poetry and short stories - but will also incorporate other kinds of sources. GE education abroad course.			
<b>2798.04</b>	<b>Introduction to Quebec</b>	<b>U</b>	<b>3</b>
This interdisciplinary course introduces students to the history and culture of Quebec with time spent in Montreal, Ottawa, and Quebec City. The course examines core institutions and traditions through lecture, discussion and experiential learning of the region's history, politics, literature, geography and science. Prereq: Permission of instructor. GE education abroad course.			
<b>2798.05</b>	<b>Cuba: Race, Revolution, and Culture</b>	<b>U</b>	<b>3</b>
This course analyzes the role of race and culture in the formation of contemporary Cuban politics and national identity, with emphasis on Cuba's African roots and attention to the role of the arts as a means of resistance to social injustice. Instruction is at the Newark campus (3 weeks) and in Cuba (10 days in Havana and Varadero). Prereq: Permission of instructor. GE education abroad course.			
<b>2798.06</b>	<b>The Past, Present, and Future of Liverpool</b>	<b>U</b>	<b>3</b>
This interdisciplinary study tour introduces students to the history, literature, and culture of Liverpool, England. The course examines core institutions, traditions, and issues through lecture, discussion, and experiential learning of government, literature, history, culture, and other relevant materials. Prereq: Permission of instructor. GE education abroad course.			

<b>3142.01</b>	<b>Online Research and the Science Literature</b>	<b>U</b>	<b>2</b>
Searching techniques, information resource types, and evaluation of online science information resources. Designed for life/physical sciences and engineering students.			
<b>3191.01</b>	<b>For-Credit Internship</b>	<b>U</b>	<b>1 - 12</b>
Internship conducted under the supervision of the employer; grade determined by ASC faculty member. Student must obtain the internship before the start of the term, and a signed learning agreement approved by faculty member and employer by first day. Enrollment in an academic department internship course is not permitted during the same term. Prereq: GPA 2.50 or above, and Soph standing or above. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>3191.02</b>	<b>Internship &amp; Career Exploration</b>	<b>U</b>	<b>1 - 2</b>
Internship under the supervision of the employer, and enrollment and evaluation coordinated by ASC Career Services. Student must obtain the position, and signed agreements by employer and instructor, prior to the start of the term. Assignments vary. Prereq: GPA 2.50 or above, and Soph standing or above. Enrollment in an academic department internship course is not permitted during the same term. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>4194</b>	<b>Interdisciplinary Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of special or interdisciplinary topics at the upper-division level. 4194H (Honors) may be available. Prereq: Jr or Sr standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>4194H</b>	<b>Interdisciplinary Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of special or interdisciplinary topics at the upper division level. Prereq: Honors standing, and Jr or Sr standing; or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4870</b>	<b>The Ohio State University: Its History and Its World</b>	<b>U</b>	<b>3</b>
An introduction to the past and present of OSU, its importance, its disciplines, the interrelations of the academic and other components of the institution, and the contributions over the years of OSU to the wider world. Prereq: Not open to students with credit for History 4870. GE cultures and ideas course. Cross-listed in History.			
<b>4998</b>	<b>Undergraduate Research in the Arts and Sciences</b>	<b>U</b>	<b>0 - 10</b>
Undergraduate research or creative activities in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Study of special or interdisciplinary studies. 5194H (honors) may be available. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194H</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Study of special or interdisciplinary studies. Prereq: Honors standing, or permission of department or instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 18</b>
An opportunity for students to study at a foreign institution and receive OSU credit for work completed there. Students will pay OSU fees and any fees in excess of OSU tuition, as well as all travel and subsistence costs. Prereq: Permission of department chairperson. Repeatable to a maximum of 54 cr hrs or 3 completions.			
<b>6110</b>	<b>Health Literacy</b>	<b>G</b>	<b>2</b>
Examine and analyze issues of low health literacy, including populations at risk, research, measurement tools, writing in plain language; health communication techniques; and organizational approaches. Prereq: Grad standing. Not open to students with credit for 709, Nursing 6110 (710), Phr 7090 (Pharmacy 709), AlliMed 7010 (710), or MedColl 7710 (710). Cross-listed in Phr 7090, Nursing 6110, AlliMed 7010, and MedColl 7710.			
<b>6750</b>	<b>Multidisciplinary Seminar for Artists</b>	<b>G</b>	<b>3</b>
A multidisciplinary seminar for graduate students in the arts throughout the university, in which we will look at the process of art-making through the lens of each medium as well as the wider lens we can provide as a group. Prereq: Not open to students with credit for 750.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Study of special or interdisciplinary topics at the graduate level. Repeatable to a maximum of 9 cr hrs or 3 completions.			

## Asian American Studies

<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research in variable topics related to Asian American Studies. Student-initiated projects. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

<b>4998H</b>	<b>Undergraduate Honors Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate honors research in variable topics related to Asian American Studies. Student-initiated projects. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research: Thesis</b>	<b>U</b>	<b>1 - 4</b>
A program of reading, research, writing, and/or creative work arranged for each student, with individual conferences, progress reports, and thesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 4</b>
A program of reading, research, writing, and/or creative work arranged for each student, with individual conferences, progress reports, and honors thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5191</b>	<b>Internship</b>	<b>U G</b>	<b>1 - 3</b>
Workplace experience requiring writing and/or research. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Individual directed study for work not typically offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Directed study of an Asian American topic not regularly offered in classes. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5700</b>	<b>Asian American Studies Workshop</b>	<b>U G</b>	<b>1 - 3</b>
Structured participation in seminar or event organized for that semester. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

## Astronomy

<b>1101</b>	<b>From Planets to the Cosmos (With Lab)</b>	<b>U</b>	<b>4</b>
Overview of the Copernican revolution, the discovery of the nature of our solar system, light, gravity, and planets around other stars; the nature and evolution of stars and origin of the chemical elements; the history of galaxies and the expanding universe. Weekly laboratory. Not recommended for students who plan to major in astronomy or physics. Prereq: Math 1050 (075) or 102, or an ACT math subscore of 22 or higher that is less than two years old, or Math Placement R or higher; or permission of instructor. Not open to students with credit for 1140, 1144, 1161H (H161), 1162H (H162), 2161H, 2162H, 2291 (291), or 2292 (292). GE nat sci phys course.			
<b>1102</b>	<b>From Planets to the Cosmos (No Lab)</b>	<b>U</b>	<b>3</b>
Overview of the Copernican revolution, the discovery of the nature of our solar system, light, gravity, and planets around other stars; the nature and evolution of stars and origin of the chemical elements; the history of galaxies and the expanding universe. Not recommended for students who plan to major in astronomy or physics. Prereq: Math 1050 (075) or 102, or an ACT math subscore of 22 or higher that is less than two years old, or Math Placement R or higher; or permission of instructor. Not open to students with credit for 1101, 1140, 1144, 1161H (H161), 1162H (H162), 2161H, 2162H, 2291 (291), or 2292 (292). GE nat sci phys course.			
<b>1140</b>	<b>Planets and The Solar System</b>	<b>U</b>	<b>3</b>
Physical nature of the sun and its family of planets, satellites, comets and minor bodies; gravitation, light, and telescopes. Not recommended for students who plan to continue in astronomy or physics. Prereq: ACT Math Subscore of 22 or higher, or Math Placement Level R or better, or Math 1050 (075) or 102, or permission of instructor. Not open to students with credit for 1161 (161), 1161H (161H), 2291 (291), or 171. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1141</b>	<b>Life in the Universe</b>	<b>U</b>	<b>3</b>
Potential for life elsewhere in the universe, based on discovery of extra-solar planets and nature of life on Earth; search strategies for such life. Prereq: Not open to students with credit for 141. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1142</b>	<b>Black Holes</b>	<b>U</b>	<b>3</b>
The nature, formation, and discovery of black holes in the universe. Prereq: ACT Math Subscore of 22 or higher, or Math Placement Level R or better, or Math 1050 (075), or permission of instructor. Not open to students with credit for 142. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1143</b>	<b>Cosmology: History of the Universe</b>	<b>U</b>	<b>3</b>
Description of the history of the universe from Big Bang to present; how observations led to discovery of this history. Prereq: Not open to students with credit for 2292 (292) or 1162 (162) or 143 or 172. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			

## 46 Astronomy

<b>1144</b>	<b>Stars, Galaxies, and the Universe</b>	<b>U</b>	<b>3</b>
Structure, motions, and evolution of stars, interstellar material, galaxies, and the universe as a whole. Not recommended for students who plan to continue in astronomy or physics. Prereq: ACT Math Subscore of 22 or higher, or Math Placement Level R or better, or Math 1050 (075), 102, or permission of instructor. Not open to students with credit for 2292 (292), 1162 (162), 1162H (162H), or 172. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1221</b>	<b>Astronomy Data Analysis</b>	<b>U</b>	<b>3</b>
Overview of data analysis in astronomy. The course will combine select topics in modern astronomy with contemporary data analysis methods implemented in the Python programming language, illustrating how astronomical data lead to scientific conclusions. It is intended for students with interest in astronomy and analysis of large data sets; prior astronomy experience not required. Prereq or concur: Math 1141, 1151, or 1161. GE nat sci phys course.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 10</b>
Independent library or laboratory work on a special problem or topic in observational or theoretical astronomy. Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 3 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 10</b>
Special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 2 completions. This course is graded S/U.			
<b>2291</b>	<b>Basic Astrophysics and Planetary Astronomy</b>	<b>U</b>	<b>3</b>
Motions and physical nature of objects in the solar system; electromagnetic radiation, telescopes, and astronomical detectors. Prereq: Physics 1251 (133), or permission of instructor. Not open to students with credit for 291. This course is available for EM credit. GE nat sci phys course.			
<b>2292</b>	<b>Stellar, Galactic, and Extragalactic Astronomy and Astrophysics</b>	<b>U</b>	<b>3</b>
Observational and physical properties of the sun and stars; stellar structure and evolution; interstellar medium; galaxies and cosmology. Prereq: 2291 (291), or permission of instructor. Not open to students with credit for 292. This course is available for EM credit. GE nat sci phys course.			
<b>2895</b>	<b>Topics in Astrophysics</b>	<b>U</b>	<b>1</b>
Prospective astronomy majors will meet weekly with different astronomy faculty to learn about current research topics, facilities, and opportunities available in the undergraduate astronomy program. Prereq: Not open to students with credit for two sections of 295. This course is graded S/U.			
<b>3350</b>	<b>Methods of Astronomical Observation and Data Analysis</b>	<b>U</b>	<b>3</b>
Astronomical observational techniques and quantitative analysis of astronomical data; practical experience with modern astronomical instrumentation and computer-based reduction, analysis, and interpretation of astronomical data. Prereq: 1162 (162), 1162H (162H), or 2292 (292), and Math 1152 (153), and Physics 1251 (133). Not open to students with credit for 350. GE data only course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 10</b>
Independent library or laboratory work on a special problem or topic in observational or theoretical astronomy. Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 3 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 10</b>
Special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 2 completions. This course is graded S/U.			
<b>4998</b>	<b>Non-Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Directed undergraduate research (non-thesis). Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 4 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Non-Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Directed undergraduate research (non-thesis). Prereq: Honors standing; and permission of instructor. Repeatable to a maximum of 30 or hrs or 4 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Directed undergraduate research for thesis. Prereq: Permission of department and instructor. Repeatable to a maximum of 30 or hrs or 10 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Directed undergraduate research (thesis). Prereq: Permission of department and instructor. Repeatable to a maximum of 30 or hrs or 10 completions. This course is graded S/U.			

<b>5205</b>	<b>Planetary Science</b>	<b>U G</b>	<b>3</b>
A multidisciplinary approach to planetary science, integrating modern methods with the Earth and Astrophysical Sciences. Team-taught with faculty in Earth Sciences. Prereq: Math 1152 and a GE Data Analysis course, or permission of instructor. Not open to students with credit for EarthSc 5205. Cross-listed in EarthSc.			
<b>5681</b>	<b>Principles of Stellar Evolution and Nucleosynthesis</b>	<b>U G</b>	<b>3</b>
Physics of stellar structure, evolution, and nucleosynthesis. Prereq: Math 2174, 2255 (255), or 2415 (415); and Physics 5500 (631); or permission of instructor. Not open to students with credit for 681 or Physics 681.			
<b>5682</b>	<b>Introduction to Cosmology</b>	<b>U G</b>	<b>3</b>
Structure and evolution of the Universe. Prereq: Math 2174 or 2255 (255) or 2415 (415); and Physics 2301 (263); or permission of instructor. Not open to students with credit for 682 or Physics 682.			
<b>5830</b>	<b>Observed Properties of Astronomical Systems</b>	<b>U G</b>	<b>5</b>
Observed properties of planets (including extrasolar planets), the solar system, stars, and both active and quiescent galaxies. Prereq: Permission of instructor. Not open to students with credit for 830.			
<b>6891</b>	<b>Astronomy Seminar I</b>	<b>G</b>	<b>2</b>
First and second year graduate students will participate in weekly departmental colloquia and journal club. Prereq: Grad standing in Astron. Not open to students with 4 qtr or hrs for 801. Repeatable to a maximum of 4 or hrs. This course is graded S/U.			
<b>6892</b>	<b>Astronomy Seminar II</b>	<b>G</b>	<b>2</b>
First and second year graduate students will participate in weekly departmental colloquia and journal club. Prereq: Grad standing in Astron. Not open to students with 8 qtr or hrs in Astron 802 and/or 803. Students with no more than 4 qtr or hrs in Astron 802 and/or Astron 803 may take this course only once. This course is graded S/U.			
<b>7810</b>	<b>Order of Magnitude Astrophysics</b>	<b>G</b>	<b>2</b>
Methods for solution of a wide range of astrophysical problems, building on basic physical principles. Prereq: Grad standing in Astron, or permission of instructor. Not open to students with 8 qtr or hrs in Astron 810. Students with no more than 4 qtr or hrs in 810 may enroll only once. Repeatable to a maximum of 4 or hrs. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Special topics not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 40 or hrs or 20 completions. This course is graded S/U.			
<b>8823</b>	<b>Atomic and Radiative Processes in Astrophysics</b>	<b>G</b>	<b>3</b>
Continuum and discrete radiative processes relevant to astrophysics. Prereq: Grad standing in Astron; or permission of instructor. Not open to students with credit for 822 and 823.			
<b>8824</b>	<b>Numerical and Statistical Methods in Astrophysics</b>	<b>G</b>	<b>2</b>
Practical applications of numerical and statistical methods used in modern astrophysics. Prereq: Grad standing in Astron; or permission of instructor.			
<b>8831</b>	<b>Stellar Structure and Evolution</b>	<b>G</b>	<b>3</b>
Theoretical aspects of the structure and evolution of single stars. Prereq: Grad standing in Astron; or permission of instructor. Not open to students with credit for 831.			
<b>8870</b>	<b>Dynamics</b>	<b>G</b>	<b>3</b>
Planetary dynamics, stellar dynamics, and astrophysical gas dynamics. Prereq: Grad standing in Astron; or permission of instructor. Not open to students with credit for 825 and 870.			
<b>8871</b>	<b>The Interstellar Medium and the Intergalactic Medium</b>	<b>G</b>	<b>3</b>
The physics of low-density gases, with application to the interstellar medium and the intergalactic medium. Prereq: Grad standing in Astron; or permission of instructor. Not open to students with credit for 871.			
<b>8873</b>	<b>Cosmology</b>	<b>G</b>	<b>3</b>
Structure and evolution of the universe, physical processes in the early universe, formation of cosmic structure. Prereq: Grad standing in Astron; or permission of instructor. Not open to students with credit for 873.			
<b>8998</b>	<b>Directed Research in Astronomy and Astrophysics</b>	<b>G</b>	<b>1 - 12</b>
Directed laboratory or library research under the direction of a faculty member that is not leading directly to a dissertation or thesis. Prereq: Grad standing in Astronomy, or permission of instructor. Repeatable to a maximum of 60 or hrs or 20 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Astronomy and Astrophysics</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation or thesis. Prereq: Grad standing in Astronomy, and permission of instructor. Repeatable to a maximum of 20 completions. This course is graded S/U.			



## Athletic Training

<b>2000</b>	<b>Basic Athletic Training</b>	<b>U</b>	<b>3</b>
Introduction to profession of Athletic Training, its governing organizations and basic knowledge and skills in prevention, recognition, management and rehabilitation of injuries and illnesses. Prereq: Enrolled in School of Health and Rehabilitation Sciences, or permission of instructor. Not open to students with credit for 303. Admis Cond course.			
<b>2010</b>	<b>Athletic Training Pre-Clinical Skills</b>	<b>U</b>	<b>1</b>
Instruction and assessment of foundational athletic training skills. Course also includes directed observations in selected athletic training facilities. Prereq or concur: 2000.			
<b>2100</b>	<b>Athletic Training Skills Assessment I</b>	<b>U</b>	<b>1</b>
Assessment of student mastery in selected Athletic Training Clinical Skills. Prereq: 2300.			
<b>2189</b>	<b>Introduction to Clinical Care in Athletic Training</b>	<b>U</b>	<b>3</b>
Introduction to clinical field experience in Athletic Training. Includes limited supervised clinical experience in selected Athletic Training facilities. Concur: 2300.			
<b>2200</b>	<b>Foundations of Athletic Training Diagnosis</b>	<b>U</b>	<b>3</b>
In depth exploration of the morphological and functional changes that are influenced by and result from sport participation, injury, and illness and that are foundational for making accurate diagnoses. Prereq: Anatomy 2300 or 3300, and admission to the Athletic Training Program.			
<b>2289</b>	<b>Athletic Training Clinical Experience First Year Multisite</b>	<b>U</b>	<b>3</b>
Supervised clinical field experience in Athletic Training rotating through multiple selected facilities. Prereq: 2189.			
<b>2300</b>	<b>Athletic Training Diagnosis and Acute Management I</b>	<b>U</b>	<b>3</b>
Pathology, evaluation, diagnosis, on-field care, and management of lower extremity & axial skeleton pathologies by athletic trainers. Special emphasis on management of acute trauma and return to play determinations. Prereq: 2200.			
<b>2310</b>	<b>Athletic Training Diagnosis and Acute Management II</b>	<b>U</b>	<b>3</b>
Pathology, evaluation, diagnosis, on-field care, and management of upper extremity & head pathologies by athletic trainers. Special emphasis on management of acute trauma and return to play determinations. Prereq: 2300.			
<b>3100</b>	<b>Athletic Training Skills Assessment II</b>	<b>U</b>	<b>1</b>
Assessment of student mastery in selected Athletic Training Clinical Skills. Prereq: 2100.			
<b>3110</b>	<b>Athletic Training Skills Assessment III</b>	<b>U</b>	<b>1</b>
Assessment of student mastery in selected Athletic Training Clinical Skills. Prereq: 3100.			
<b>3189</b>	<b>Athletic Training Clinical Experience: Collegiate I</b>	<b>U</b>	<b>5</b>
Supervised Athletic Training clinical experience in the intercollegiate athletics setting. First of three course sequence. Prereq: 2289.			
<b>3289</b>	<b>Athletic Training Clinical Experience: Collegiate II</b>	<b>U</b>	<b>5</b>
Supervised Athletic Training clinical experience in the intercollegiate athletics setting. Second of three course sequence. Prereq: 3189.			
<b>3389</b>	<b>Athletic Training Clinical Experience: Collegiate III</b>	<b>U</b>	<b>1</b>
Supervised Athletic Training clinical experience in the intercollegiate athletics setting. Third of three course sequence. Prereq: 3289.			
<b>3500</b>	<b>Athletic Training Therapeutic Modalities</b>	<b>U</b>	<b>3</b>
Theory and clinical application of physical agents including heat, cold, light, sound, electromagnetic and mechanical energy in treatment and rehabilitation performed by Athletic Trainers. Prereq: 2310.			
<b>3600</b>	<b>Athletic Training Biomechanics</b>	<b>U</b>	<b>3</b>
Theory and clinical application of biomechanics, kinetics, and kinematics by Athletic Trainers in the prevention, diagnosis, management, and rehabilitation of injuries. Prereq: 2310.			
<b>3700</b>	<b>Athletic Training Therapeutic Exercise</b>	<b>U</b>	<b>3</b>
Theory and clinical application of therapeutic exercise in rehabilitation by Athletic Trainers. Prereq: 3500, 3600, and KnHES 5500.			
<b>3750</b>	<b>Musculoskeletal Screening and Corrective Techniques</b>	<b>U</b>	<b>1</b>
Use of musculoskeletal screening to identify injury risks and development and implementation of specific strengthening programs to minimize those risks. Prereq: 3600.			

## 3800 Care of Medical Emergencies, Trauma, and Disease U 4

Diagnosis, on-field care, and ongoing management of disease and non-orthopedic trauma by athletic trainers. Special emphasis on management of catastrophic injury and on inflammation and repair. Prereq or concur: 2310.

## 4100 Athletic Training Skills Assessment IV U 1

Assessment of student mastery in selected Athletic Training Clinical Skills. Prereq: 3110.

## 4110 Athletic Training Skills Assessment V U 1

Assessment of student mastery in selected Athletic Training Clinical Skills. Prereq: 4100.

## 4120 Athletic Training Skills Assessment VI U 1

Assessment of student mastery in selected Athletic Training Clinical Skills. Prereq: 4100.

## 4189 Athletic Training Clinical Experience: High School U 5

Supervised Athletic Training clinical experience in the high school athletics setting. Prereq: 2189.

## 4289 Athletic Training Clinical Experience: General Medicine U 1

Supervised Athletic Training clinical experience in the physician extender/general medical setting. Recommended prereq: 3389. Prereq: 3289.

## 4389 Athletic Training Clinical Experience: Elective U 1 - 12

Elective supervised Athletic Training clinical experience. Intended to provide interested students with additional, non-required clinical practice experiences. Requires pre-approval by AT Division's Director of Clinical Education. Prereq: Permission of Director of Clinical Education. Repeatable to a maximum of 36 cr hrs or 4 completions.

## 4500 Administration in Athletic Training U 3

Administration of Athletic Training programs. Includes management of personnel, budget, facilities, medical records, insurance, legal liability, emergency plans, public relations, and other topics. Prereq: 3700.

## 4600 Psychosocial Issues, Identification and Mediation in Physically Active Patients U 3

Psychosocial theory and facilitation of development. Disorders are outlined to help athletic trainers identify poor coping mechanisms, psychological disorders, mediation and referral strategies and processes. Concur: 4500.

## Atmospheric Sciences

## 2193 Individual Studies in Atmospheric Sciences U 1 - 9

Independent studies on selected atmospheric sciences related topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

## 2194 Group Studies in Atmospheric Sciences U 1 - 3

Special studies on topics directly related to the atmospheric sciences. Repeatable to a maximum of 15 cr hrs or 5 completions.

## 2940 Basic Meteorology U 3

Introduction to the underlying physics of the atmosphere; basic equations of thermodynamics, radiation, and dynamics are presented and used to explain selected atmospheric phenomena. Prereq: Math 1151 and Physics 1250. Not open to students with credit for 230 or 5900 (520).

## 4191 Internship in Atmospheric Sciences U 1 - 6

An opportunity for practical experience and on-the-job learning in an atmospheric sciences related work place. Prereq: 12 cr hrs in major program, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

## 4193 Individual Studies in Atmospheric Sciences U 1 - 9

Independent studies on selected atmospheric science-related topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

## 4194 Group Studies in Atmospheric Sciences U 1 - 3

Special studies on topics directly related to the atmospheric sciences. Repeatable to a maximum of 15 cr hrs or 5 completions.

## 4998 Undergraduate Research in Atmospheric Sciences U 1 - 9

Undergraduate research on topics in Atmospheric Sciences. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

## 48 Atmospheric Sciences

<b>4998H</b>	<b>Honors Undergraduate Research in Atmospheric Sciences</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research on topics in Atmospheric Sciences. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 9</b>
A program of research that includes individual conferences and culminates in a thesis. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4999H</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 9</b>
A program of research which includes individual conferences and which culminates in an honors thesis and an oral defense. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>5191</b>	<b>Internship in Atmospheric Sciences</b>	<b>U G</b>	<b>1 - 6</b>
An opportunity for practical experience and on-the-job learning in an atmospheric sciences related work place. Prereq: 12 cr hrs in major program, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies in Atmospheric Sciences</b>	<b>U G</b>	<b>1 - 15</b>
Independent studies on selected atmospheric sciences related topics. Prereq: Permission of instructor. Repeatable to a maximum of 5 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in Atmospheric Sciences</b>	<b>U G</b>	<b>1 - 3</b>
Special studies on selected atmospheric sciences related topics. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5901</b>	<b>Climate System Modeling: Basics and Applications</b>	<b>U G</b>	<b>3</b>
An examination of climate system modeling, including their component atmospheric, oceanic, sea ice and land surface models, and their coupling, and their applications. Prereq: A grade of C- or above 2940 or Geog 5900, or permission of instructor.			
<b>5940</b>	<b>Synoptic Meteorology Laboratory</b>	<b>U G</b>	<b>2</b>
Introduction to reading and interpretation of synoptic weather maps and diagram- and data-communication systems. Prereq: 2940 (230) or Geog 5900 (520). Not open to students with credit for 620 or Geog 5940 (620). Cross-listed in Geog.			
<b>5950</b>	<b>Atmospheric Thermodynamics</b>	<b>U G</b>	<b>3</b>
An analysis of the fundamentals of atmospheric thermodynamics and their application to meteorological problems. Prereq: Math 1152 (153). Not open to students with credit for 631.			
<b>5951</b>	<b>Dynamic Meteorology I</b>	<b>U G</b>	<b>3</b>
Fundamental problems in dynamic meteorology; components of the equations of atmospheric motion are derived, and vorticity and divergence in the development of meteorological systems.			
<b>5952</b>	<b>Dynamic Meteorology II</b>	<b>U G</b>	<b>3</b>
Advanced problems in dynamic meteorology; use of the equations of motion in numerical models of the atmosphere, especially those used by the National Weather Service. Prereq: Math 2255, and a grade of C- or above in AtmosSc 5951 or AeroEng 2405.			
<b>7193</b>	<b>Individual Studies in Atmospheric Sciences</b>	<b>G</b>	<b>1 - 15</b>
Independent studies on selected atmospheric sciences related topics. Prereq: Permission of instructor. Repeatable to a maximum of 5 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Atmospheric Sciences</b>	<b>G</b>	<b>1 - 3</b>
Special studies on topics directly related to the atmospheric sciences. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8900</b>	<b>Atmospheric Sciences Seminar</b>	<b>G</b>	<b>3</b>
A multidisciplinary seminar reviewing selected topics in atmospheric sciences and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.			
<b>8999</b>	<b>Research in Atmospheric Sciences</b>	<b>G</b>	<b>1 - 9</b>
Research for thesis or dissertation purpose only. Repeatable to a maximum of 5 completions. This course is graded S/U.			

## Aviation

<b>2000</b>	<b>Introduction to the Aviation Industry</b>	<b>U</b>	<b>3</b>
Introduction to the aviation industry, including its elements, components, and structures. Topics include: aircraft, airports, airspace, a survey of industry segments and purposes, and careers and career paths.			

<b>2100</b>	<b>Private Pilot Fundamentals</b>	<b>U</b>	<b>5</b>
Study of flight fundamentals, aircraft operations, weather, and regulations required for Private Pilot certification. This course is conducted under Federal Aviation Administration Regulations Part 141. Prereq: Not open to students with credit for Aviation 310.01. This course is available for EM credit.			
<b>2101</b>	<b>Private Pilot Flight Lab I</b>	<b>U</b>	<b>2</b>
The first course in a series of two courses that culminate in the attainment of a private pilot certificate with airplane single engine land privileges. An application and orientation process is required before enrollment. Prereq: A grade of B- or above in 2100, and CPHR 2.0 or above. Not open to students with credit for Aviation 341.			
<b>2102</b>	<b>Private Pilot Flight Lab II</b>	<b>U</b>	<b>2</b>
The second course in a series of two courses that culminate in the attainment of a private pilot certificate with airplane single engine land privileges. Prereq: 2101, and CPHR 2.0 or above. Not open to students with credit for Aviation 342.			
<b>2200</b>	<b>Aviation Communication</b>	<b>U</b>	<b>3</b>
Consideration of oral, written, operational, professional, impromptu, prepared, and management communication. Emphasis on aviation communication protocols and formats. Prereq: 2000 and 2100.			
<b>2300</b>	<b>Aircraft Performance and Weather</b>	<b>U</b>	<b>3</b>
Weather theory, patterns, data, and analysis. Data formats and sources. Consideration of weather conditions as they relate to aircraft and flight performance. Prereq: Aviatn 2000 and 2100. Not open to students with credit for Aviation 410 or 411.			
<b>2501</b>	<b>Commercial Cross Country Flight Lab</b>	<b>U</b>	<b>2</b>
Course country flights designed to meet the requirements of the commercial pilot certificate. Prereq: 2100, 2101, and 2102; and CPHR 2.0 or above; and permission of instructor.			
<b>2900</b>	<b>Air Traffic Control Fundamentals</b>	<b>U</b>	<b>3</b>
This course is an in-depth examination of the role and function of the Air Traffic Control environment as it relates to operations and pilot communications within the National Airspace System (NAS). Prereq: 2300, or permission of instructor.			
<b>3000</b>	<b>Aviation Management and Marketing</b>	<b>U</b>	<b>3</b>
Consideration of management and marketing concepts and models. Analysis of management and marketing strategies and practices in the aviation industry. Prereq: 2000 and 2100. Concur: 2200, or a second-level writing course. Not open to students with credit for Aviation 550 or 654.			
<b>3100</b>	<b>Instrument Flight Fundamentals</b>	<b>U</b>	<b>3</b>
Study of flight by reference to instruments, IFR regulations, and procedures in the National Airspace System. Prereq: A grade of B- or above in Aviatn 2100, 2101, and 2102. Not open to students with credit for Aviation 415.			
<b>3101</b>	<b>Instrument Flight Lab</b>	<b>U</b>	<b>3</b>
Instrument flight operations, navigation, patterns, maneuvers, regulations, approach protocols, and cross country flight planning and execution. Prereq: 2100 and 2102; and CPHR 2.0 or above. Concur: 3100. Not open to students with credit for Aviation 441 or 442.			
<b>3193</b>	<b>Individual Studies in Aviation</b>	<b>U</b>	<b>2 - 5</b>
Research, project(s), and/or investigation into aviation topics that are not treated in existing classes. Prereq: Permission of instructor. Repeatable to a maximum of 7 cr hrs or 2 completions. This course is graded S/U.			
<b>3194</b>	<b>Group Studies in Aviation</b>	<b>U</b>	<b>2 - 5</b>
Research, project(s), and/or investigation into comprehensive and larger aviation topics that are not treated in existing classes and are best served by a team. Prereq: Permission of instructor. Repeatable to a maximum of 7 cr hrs or 2 completions.			
<b>3200</b>	<b>Aviation Regulations and Policy</b>	<b>U</b>	<b>3</b>
Consideration and analysis of aviation regulatory environments and processes, such as regulatory certifications, rulemaking, and legislation. Maintenance, airports, aircraft, and operations. Law, environment, safety, security, and operations. Prereq or concur: 3000.			
<b>3300</b>	<b>Aviation Human Factors and Safety</b>	<b>U</b>	<b>3</b>
Consideration of Human Factors including all sensory, perceptive, cognitive and decision making dynamics as they are expressed in aviation. Consideration of aviation safety including incidents, accidents, crew resource management, and performance. Prereq or concur: 3000. Not open to students with credit for Aviation 540 or 560.			
<b>3340.01</b>	<b>Aviation Human Factors Transition</b>	<b>U</b>	<b>2</b>
First half of the curriculum of the new semester course AVN 3300 - "Aviation Human Factors" which is the combination of AVN 540 - Aviation Human Factors, and AVN 560 - Aviation Safety, under the quarter system. This course will focus solely on the aviation human factors component of the combined course curriculum. The course will be offered for 2 semester units. Prereq: Aviation 560. Not open to students with credit for Aviation 540.			

<b>3400</b>	<b>Aviation Accident Investigation</b>	<b>U</b>	<b>3</b>
Review of accident investigation techniques and methodologies that will be reinforced with case examples. Prereq: 2000 and 2100.			
<b>3500</b>	<b>Airline Labor Relations</b>	<b>U</b>	<b>3</b>
Provides students with an overview of the modern airline labor system in the United States as regulated by the Railway Labor Act. Areas of focus include the organizing process, collective bargaining, negotiation tools and techniques, dispute resolution, corporate structures, mergers, and the union's role in safety. Prereq: 2000, 2100, and 3000.			
<b>3600</b>	<b>Business and Corporate Aviation Management</b>	<b>U</b>	<b>3</b>
Analysis and review of the principles and challenges of operating an on-demand air transportation system. Consideration of decision making strategies and sound operating practices that are needed to define and manage a corporate flight department. Presentation of information via textbook, assigned readings, videos, lecture and guest speakers. Prereq: 3000.			
<b>3700</b>	<b>Building a Diverse Workforce in Aviation</b>	<b>U</b>	<b>3</b>
This course is an analysis of what it takes to create and sustain a diverse and inclusive workforce in the aviation industry. Students will engage with guest speakers and readings to understand how diversity, inclusion, and equity are defined. Readings will cover the historical significance of diversity and inclusion efforts. Prereq: 2000, 2100, and 2200; or permission of instructor.			
<b>4000</b>	<b>Air Transportation Analysis I</b>	<b>U</b>	<b>3</b>
Analysis of domestic and international air transportation systems and models. Particular focus on supply and demand components. Consideration of major industry segments, such as commercial, business, cargo, and general aviation. Prereq: Aviatn 3000. Not open to students with credit for Aviation 650 or 652.			
<b>4100</b>	<b>Commercial Flight Fundamentals</b>	<b>U</b>	<b>3</b>
Study of regulations, aerodynamics, systems, performance profiles, navigation, weather, and operations for the commercial pilot certificate. Prereq: A grade of B- or above in Aviatn 2100, 2102, and 3101; or permission of instructor. Not open to students with credit for Aviation 413.			
<b>4101</b>	<b>Commercial Flight Lab</b>	<b>U</b>	<b>3</b>
Second course toward Commercial Pilot certificate single engine land. Prereq: 2102 and 3101; and a CPHR 2.0 or above. Not open to students with credit for Aviation 444 or 445.			
<b>4200</b>	<b>Aircraft Dispatch Fundamentals</b>	<b>U</b>	<b>3</b>
Aircraft Dispatch Fundamentals is the first in a two course sequence of Aircraft Dispatch oriented courses that lead to FAA Aircraft Dispatch Certification. This course provides an overview of aerodynamics, navigation, weather theory and forecasting, and flight planning. Small general aviation aircraft are used as examples in the course. Note: Age Requirements: All students must be 21 years of age upon completion of AVN 4201-Applied Aircraft Dispatch in order to receive a graduation certificate that allows students to sit for the FAA Aircraft Dispatch Practical Exam. This is to ensure compliance with the requirements found in FAR 65.53. Prereq: 2100, 2300, and permission of instructor.			
<b>4201</b>	<b>Applied Dispatching</b>	<b>U</b>	<b>3</b>
Study of dispatch fundamentals, aircraft systems, performance, ATC requirements, and the practical application of dispatching an aircraft. Note: Age Requirements: All students will be required to be 21 years of age upon completion of AVN 4201-Applied Aircraft Dispatch in order to receive a graduate certificate that allows you to sit for the FAA Aircraft Dispatch Practical Exam. This is to ensure compliance with the requirements found in FAR 65.53. Prereq: 4200.			
<b>4300</b>	<b>Advanced Multi-Engine Operations</b>	<b>U</b>	<b>2</b>
Introduction and consideration of Part 121 and 135 operations with a comprehensive study of the principles of advanced aircraft operations. Prereq: Aviatn 4100. Not open to students with credit for Aviation 417.			
<b>4301</b>	<b>Commercial Multi Engine Flight Lab</b>	<b>U</b>	<b>2</b>
Aeronautical knowledge and flight training required to attain an airplane multi engine rating in addition to the Commercial Pilot certificate. Prereq: A grade of B- or above in 3100 and 4100; 2501 and 3101; and a CPHR 2.0 or above. Not open to students with credit for Aviation 446.			
<b>4400</b>	<b>Airport Management</b>	<b>U</b>	<b>3</b>
Comprehensive study of airport operations and management; role of the airport manager in planning, finance, administration, public relations, socio-political and environmental considerations, and operational requirements and maintenance. Prereq: Aviatn 3000. Not open to students with credit for Aviation 552.			
<b>4500</b>	<b>Aviation Capstone</b>	<b>U</b>	<b>3</b>
Directed research, preparation, and presentation of relevant and coordinated information that summarizes current or predicted significant aviation topics, issues, and developments. Partnership with industry is encouraged. Prereq: Aviatn major, and completion of the Aviatn major core.			

<b>4800</b>	<b>Professional Practices in Industry</b>	<b>U</b>	<b>2 - 5</b>
Application of academic skills, knowledge, and training to identify issues, problems, or research in the student's aviation industry workplace. Employment and faculty sponsorship, problem identification, analysis, and solution proposals. Prereq: Approval of faculty sponsor and/or industry employer/sponsor. Not open to students with credit for Aviation 489. Repeatable to a maximum of 7 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Aviation Engineering Research for Honors Thesis</b>	<b>U</b>	<b>1 - 3</b>
Supervised research and project work arranged individually for honors students resulting in a written Honors thesis. Prereq: Honors standing in the College of Engineering, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 4 completions.			
<b>5000</b>	<b>Air Transportation Analysis II</b>	<b>U G</b>	<b>3</b>
Consideration of commercial air transportation systems with emphasis on performance measurement, productivity, optimization, and network analysis. Prereq: Aviatn 4000. Not open to students with credit for Aviation 591 or 750.			
<b>5100</b>	<b>Flight Instructor Methodology</b>	<b>U G</b>	<b>2</b>
Study of learning theories, communication techniques, the teaching process, teaching methods, and evaluation. Application of these concepts to develop lesson plans and course(s) of study. Prereq: A grade of B- or above in Aviatn 2300, 3100, and 4100. Not open to students with credit for Aviation 421.			
<b>5101</b>	<b>Flight Instructor ASE Flight Lab</b>	<b>U G</b>	<b>2</b>
Aeronautical knowledge, experience and skills necessary to meet or exceed FAR Part 61 requirements for a flight instructor certificate with airplane single engine land privileges. Prereq: A grade of B- or above in 5100, and CPHR 2.0 or above. Not open to students with credit for Aviation 461.			
<b>5102</b>	<b>Flight Instructor AME Lab</b>	<b>U G</b>	<b>1</b>
Aeronautical knowledge and flight training necessary to attain an airplane multi-engine rating in addition to the Flight Instructor ASEL certificate. Prereq: Aviatn 4301 and 5101. Not open to students with credit for Aviation 463.			
<b>5193</b>	<b>Individual Studies in Aviation</b>	<b>U G</b>	<b>2 - 5</b>
Research, projects, and/or investigations into aviation topics that are not treated in existing classes. Prereq: Permission of instructor. Repeatable to a maximum of 7 cr hrs or 2 completions.			
<b>5194</b>	<b>Group Studies in Aviation</b>	<b>U G</b>	<b>2 - 5</b>
Team research, projects, and/or investigation into comprehensive and larger aviation topics that are not treated in existing classes. Prereq: Permission of instructor. Repeatable to a maximum of 7 cr hrs or 2 completions.			
<b>5200</b>	<b>Instrument Flight Instructor Methodology</b>	<b>U G</b>	<b>2</b>
Teaching methods and evaluation procedures for a course of study leading to an Instrument Instructor rating. Prereq: A grade of B- or above in Aviatn 3100 and 5100. Not open to students with credit for Aviation 422.			
<b>5201</b>	<b>Flight Instructor Instrument Flight Lab</b>	<b>U G</b>	<b>1</b>
Necessary aeronautical knowledge, experience, and skills to meet or exceed FAR Part 61 requirements for instrument flight instructor certification. Prereq: Aviatn 5101, or Flight Instructor Certificate. Not open to students with credit for Aviation 462.			
<b>5300</b>	<b>Airport Planning, Design, and Development</b>	<b>U G</b>	<b>3</b>
A comprehensive study of airport planning, design and development, the role of the airport and its components as part of the overall air transportation system, the issues related to the planning, design, and development of the airport and its system. Prereq: Aviatn 3000, CRPlan 3100, or Sr standing in CivilEn major, or Grad standing, or permission of instructor. Cross-listed in CRPlan and CivilEn.			
<b>5998H</b>	<b>Honors Research in Aviation</b>	<b>U G</b>	<b>1 - 6</b>
Designed to give the student an opportunity to pursue special studies in Aviation at an honors level on topics not otherwise offered. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			

## Biochemistry

<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions. This course is graded S/U.			
<b>2210</b>	<b>Elements of Biochemistry</b>	<b>U</b>	<b>4</b>
A survey of biochemistry stressing the qualitative rather than the quantitative approach. Credit does not count toward a major in biochemistry. Prereq: Chem 1110 (102) or 1210 (122), or equiv. Not open to students with credit for 211 and 212. This course is available for EM credit.			

## 50 Biochemistry

<b>2900H</b>	<b>Early Experience in Research in Biochemistry: Seminar</b>	<b>U</b>	<b>1</b>
Introduction to biochemical research through seminars and laboratory tours by faculty in the department. Biology 1113 (113) recommended but not required. Prereq: Honors standing, and Chem 1220 (123), 1620 (163), or 1920H (203H); or permission of instructor. Not open to students with credit for 1900H or 200H. This course is graded S/U.			
<b>2998H</b>	<b>Early Experience in Research in Biochemistry: Laboratory</b>	<b>U</b>	<b>1 - 3</b>
A laboratory sequel to Biochem 2900H to introduce undergraduates to biochemical research. Prereq: Honors standing, and 2900H; or permission of instructor. Not open to students with credit for 1998H or 201H. This course is graded S/U.			
<b>3798.02</b>	<b>Study Tour: Foreign</b>	<b>U</b>	<b>1 - 10</b>
Study Tour. Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Foreign locations only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
Individual Studies. Prereq: Permission of instructor. Repeatable to a maximum of 25 or hrs or 8 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 16 or hrs or 4 completions. This course is graded S/U.			
<b>4511</b>	<b>Introduction to Biological Chemistry</b>	<b>U</b>	<b>4</b>
An introductory course in biochemistry dealing with the molecular basis of structure, metabolism, genetic replication, transcription, and translation in plants, animals, and microorganisms. Prereq: Chem 1220 (123) or 1250 (125), and 2510 (252) or 2310 (231), and one semester of Biological Sciences; or permission of instructor. Not open to students with credit for 511. This course is available for EM credit.			
<b>4998</b>	<b>Undergraduate Research in Biochemistry</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research in biochemistry, structural and molecular biology. Prereq: Permission of instructor under whose supervision the work is to be completed. Repeatable to a maximum of 20 or hrs or 5 completions.			
<b>4998H</b>	<b>Undergraduate Honors Research in Biochemistry</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research in biochemistry, structural and molecular biology. Prereq: Honors standing, and permission of instructor under whose supervision the work is to be completed. Repeatable to a maximum of 20 or hrs or 5 completions.			
<b>4999</b>	<b>Thesis Research in Biochemistry</b>	<b>U</b>	<b>1 - 5</b>
A program of reading and research for each student with individual conferences and reports, culminating in the preparation of a thesis. Prereq: Permission of instructor under whose supervision the work is to be completed. Repeatable to a maximum of 20 or hrs or 5 completions.			
<b>4999H</b>	<b>Honors Thesis Research in Biochemistry</b>	<b>U</b>	<b>1 - 5</b>
A program of reading and research for each student with individual conferences and reports, culminating in the preparation of an honors thesis. Prereq: Honors, and Jr or Sr standing, and permission of instructor under whose supervision the work is to be completed. Repeatable to a maximum of 20 or hrs or 5 completions.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 5</b>
A program of supervised independent study for each student with individual conferences and reports. Prereq: Permission of instructor under whose supervision the study is to be completed. Repeatable to a maximum of 25 or hrs or 8 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions.			
<b>5613</b>	<b>Biochemistry and Molecular Biology I</b>	<b>U G</b>	<b>3</b>
An introductory course in biochemistry and molecular biology developing in three semesters the molecular basis of structure and function of living cells. Prereq: Chem 2510 (252), 2610, or 2910H. Prereq or concur: Chem 2520 (253), 2620, or 2920H, and one semester in Biological Sciences. Not open to students with credit for 613 or 4511 (511).			
<b>5614</b>	<b>Biochemistry and Molecular Biology II</b>	<b>U G</b>	<b>3</b>
Continuation of Biochem 5613. Prereq: A grade of C- or above in 5613.			
<b>5615</b>	<b>Biochemistry and Molecular Biology III</b>	<b>U G</b>	<b>3</b>
Continuation of Biochem 5614. Prereq: A grade of C- or above in 5614.			
<b>5621</b>	<b>Biochemistry and Molecular Biology Laboratory</b>	<b>U G</b>	<b>4</b>
Laboratory course covering the principles and application of basic lab techniques, protein purification, enzyme assays, and recombinant DNA technologies. Prereq: A grade of C- or above in 4511 or 5613, or equiv.			

<b>5701</b>	<b>DNA Transactions and Gene Regulation</b>	<b>U G</b>	<b>3</b>
Understanding mechanisms of DNA replication, DNA repair and recombination, transcription, translation, regulation of gene expression, and the experimental approaches to these topics. Prereq: 4511 or equiv., and MolGen 4500 or 5606; and Sr or Grad standing, or permission of instructor. Not open to students with credit for MolGen 5701. Cross-listed in MolGen.			
<b>5721</b>	<b>Physical Biochemistry I</b>	<b>U G</b>	<b>3</b>
Introduction to physical chemistry with emphasis on biological applications; designed for students in the life sciences. Prereq: Biology 1113; Math 1152 (153), 1172, 1181H, or 2162 (162); and Physics 1201 (113) or 1251 (133). Prereq or concur: Chem 2520 (253), 2620, or 2920H. Not open to students with credit for 721.01 or Chem 4200 or 4300.			
<b>5722</b>	<b>Physical Biochemistry II</b>	<b>U G</b>	<b>3</b>
Continuation of Biochem 5721. Prereq: 5721, or Chem 4200 or 4300. Not open to students with credit for 721.02 and 721.03.			
<b>6701</b>	<b>Advanced Biochemistry: Molecular Biology</b>	<b>G</b>	<b>3</b>
An advanced treatment of the biochemical principles of gene and genome function. Prereq: 5615 and MolGen 4500, or equivs. Concur: 6761 or BioPhrm 6761, or permission of instructor. Not open to students with credit for BioPhrm 6701, Micrbio 6080, 6010, or MolGen 5701. Cross-listed in BioPhrm.			
<b>6761</b>	<b>Advanced Biochemistry: Macromolecular Structure and Function</b>	<b>G</b>	<b>3</b>
An advanced treatment of the physical and chemical properties, biological function, and structural biology of proteins and nucleic acids. Prereq: 5615 (615), Chem 2520 (253), 2550 (255), and 4210 (521), or equiv; or permission of instructor. Not open to students with credit for 761 and 766, or Chem 761 and 766, or BioPhrm 6761 (761 and 766). Cross-listed in BioPhrm.			
<b>6762</b>	<b>Advanced Biochemistry: Enzymes</b>	<b>G</b>	<b>1½</b>
An advanced treatment of enzymology and enzyme mechanisms. Prereq: 5615 (615), and Chem 2520 (253) or 2550 (255), and 4210 (521), or equiv; or permission of instructor. Not open to students with credit for 762, Chem 762, or MolBioc 6762 (762). Cross-listed in MolBioc.			
<b>6763</b>	<b>Advanced Biochemistry: Membranes and Lipids</b>	<b>G</b>	<b>1½</b>
An advanced treatment of membranes structure, function, and lipids. Prereq: 5615 (615), Chem 2520 (253), 2550 (255), and 4210 (521), or equiv; or permission of instructor. Not open to students with credit for 763, Chem 763, or MolBioc 6763 (763). Cross-listed in MolBioc.			
<b>6765.01</b>	<b>Advanced Biochemistry: Physical Biochemistry</b>	<b>G</b>	<b>1½</b>
An advanced treatment of physical biochemistry including topics in spectroscopy. Prereq: 5615 (615), Chem 2520 (253), 2550 (255), and 4210 (521), or equiv; or permission of instructor. Not open to students with credit for 6765.02 (765), Chem 765, or MolBioc 765.			
<b>6765.02</b>	<b>Advanced Biochemistry: Physical Biochemistry</b>	<b>G</b>	<b>3</b>
An advanced treatment of physical biochemistry including topics in spectroscopy. Prereq: 5615 (615), Chem 2520 (253), 2550 (255), and 4210 (521), or equiv; or permission of instructor. Not open to students with credit for 6765.01 (765), Chem 765, or MolBioc 765.			
<b>6998</b>	<b>Graduate Research in Biochemistry</b>	<b>G</b>	<b>1 - 12</b>
Research in biochemistry, structural and molecular biology. Repeatable. This course is graded S/U.			
<b>6999</b>	<b>Research for Masters Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research for Masters thesis only. Repeatable. This course is graded S/U.			
<b>7766.01</b>	<b>Advanced Biochemistry: Nucleic Acids</b>	<b>G</b>	<b>1½</b>
Advanced understanding of the structure and function of nucleic acids, their interactions with other biological molecules, and of the techniques for detailed mechanistic investigation of nucleic acid structure and function. Prereq: 6701 or 6761, or permission of instructor. Not open to students with credit for 7766.02.			
<b>7770.01</b>	<b>Advanced Biochemistry: Protein Engineering</b>	<b>G</b>	<b>1½</b>
Current research on genetic and protein engineering of proteins for biotechnological and theoretical studies. Prereq: 6761 (761), Chem 6761 (761), or MolBioc 6761 (761), or equiv, or permission of instructor. Not open to students with credit for 7770.02 (770).			
<b>8900.01</b>	<b>Advanced Biochemistry: Biomolecular NMR</b>	<b>G</b>	<b>1½</b>
Application of NMR spectroscopy to the study of biological macromolecules. Heteronuclear NMR, product operators, multidimensional spectra, proteins, nucleic acids, structure determination, dynamics, ligand complexes. Prereq: Grad standing in Biochemistry, Biophysics or Chemistry, or permission of instructor. Not open to students with credit for 8900.02 (905).			
<b>8990</b>	<b>Advanced Topics in Biochemistry</b>	<b>G</b>	<b>1 - 4</b>
Advanced treatment of areas of current interest in biochemistry; topics will be announced each semester. Prereq: 5615 (615) or equiv, or permission of instructor. Repeatable to a maximum of 16 or hrs or 4 completions.			

8999	Research for Dissertation	G	1 - 12
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Research for doctoral dissertation only.  
Repeatable. This course is graded S/U.

## Bioenergy and Water Treatment Management

1201T	Exploring Bioenergy and Water Treatment Management	U	½
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Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.

2010T	Introduction to Bioenergy and Water Treatment Management	U	3
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An Introduction to conventional and alternative energy (with emphasis on bioenergy and bioproducts), including conservation, economic and environmental issues. Water Consumption, scarcity, pollution, and water resource recovery will be emphasized. Fermentation technology and biochemistry of microbial breakdown of carbohydrates, proteins, and lipids will be introduced.

This course is available for EM credit.

2020T	Bioenergy and Wastewater Technologies	U	4
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A detailed description of technologies employed in bioenergy-generating processes and wastewater treatment. Scientific and technical backgrounds of fermentation technology will be introduced. A critical evaluation of the environmental impacts of organic wastes. Bioreactor design; management of industrial, agricultural, and municipal solid wastes and wastewater will be covered.

Prereq: 2010T; Chem 1110 or 1210. This course is available for EM credit.

2030T	Feedstock Evaluation and Analysis	U	3
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An Introduction to feedstocks used in the bioenergy/bio-products industry, including analytical tools for feedstock evaluation and handling, and logistical and economic aspects of industrial biomass feedstocks.

Prereq: 2010T. This course is available for EM credit.

2035T	Sustainable Bio-Based Technologies	U	3
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The science and economics of composting, recycling, bioremediation, and phytoremediation will be introduced. Biocoverion of organic wastes and plant-derived sugars to value-added non-fuel products (platform chemicals and other bio-products) will be explored through classroom sessions and laboratory experiments.

Prereq: 2010T; Chem 1210. This course is available for EM credit.

2040T	Bioenergy and Water Management Projects	U	3
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This capstone course provides a general overview of bioenergy-generating and wastewater treatment systems with emphasis on planning and logistics, project management, economics, and operations in a real-world setting. Practical applications for managing waste-to-energy projects and wastewater treatment will be emphasized through hands-on and on-site experience.

Prereq: 2020T; 2030T.

2189T	Bioenergy and Water Management Practicum	U	1 - 2
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Supervised practical experience in a relevant work environment-bioenergy laboratory, wastewater treatment plant, biogas plant-with emphasis on developing competencies related to classroom and career activities. A grade of C or better required to meet graduation requirements.

Repeatable to a maximum of 4 or hrs or 2 completions.

2191T	Bioenergy and Water Management Internship	U	2
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Employment experience in a bioenergy/biological waste management work environment that provides varied occupational experience, supervised by an employer and coordinated by faculty. A grade of C or better required to meet graduation requirements.

Prereq: GPA 2.00 or above, and permission of instructor.

2193T	Individual Studies	U	1 - 3
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Designed to give an individual student an opportunity to pursue special studies not offered in other courses.

Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

This course is graded S/U.

2194T	Group Studies	U	1 - 3
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Designed to give groups of students an opportunity to pursue special studies not offered in other courses.

Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

## Bioethics

2000	Theory and Foundations of Bioethics	U	3
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Explores moral concerns and ethical decision-making in medicine and health care. Topics include health care reform informed consent, quality of life decisions, decisions to allow to die, rationing, futility, and scarcity of resources. In particular, we will analyze concerns regarding equality, justice, and individual rights to health care.

GE cultures and ideas course.

2010	Ethics of Biomedical Science Research	U	3
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Provides a foundation in traditional ethics, a consideration of the subcategories of bioethics, neuroethics, and eugenics and instructs students in how to apply ethics to contemporary issues in research and technology. This course also satisfies the basic components of Responsible Conduct of Research (RCR) education.

GE cultures and ideas course.

2020	Bioethics in Film, Media & Society: Explorations in Culture and Biopolitics	U	3
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This course is designed as a forum for identifying and discussing moral, societal, and political issues in bioethics as represented through various forms of moving-image culture, primarily in film but also including still photography, television, and digital media.

3000	Case Studies in Medical and Healthcare Ethics	U	3
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The field of medical ethics has been and is continually shaped by major cases, both famous and infamous. This course surveys the causes and contexts, as well as the philosophical and ethical issues embedded within these cases.

4000	Readings in Bioethics	U	3
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Readings in Bioethics entails a close reading of classic bioethics texts from Hippocrates through the beginning of the modern bioethics period (i.e., Fletcher, Ramsey, and Singer) and through the contemporary era. Religious and secular writings from diverse perspectives will be included. This course combines lecture presentation, class discussion, and student presentations.

6000	Bioethics Theory and Foundations	G	3
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Offers a philosophical survey of the moral foundations of contemporary bioethical theories and health care policies.

6010	Biomedical Research Ethics	G	3
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The broad intent of this course is to highlight the importance of ethics in biomedical research and to explore how critical ethical thinking can be used to analyze personal decision-making, public regulation, and the law concerning advanced biomedical sciences/technologies and their clinical applications.

6020	Clinical Bioethics I	G	3
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Explore the major clinical ethical issues confronting the practices of medicine and biomedical science.

6030	Bioethics, Law, & Public Policy	G	3
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Instructs students in rudimentary legal research skills, constitutional foundations of health care law applicable to some classical and contemporary legal issues, and an overview of the structures of the legal system of the United States.

6040	Bioethics Symposium I	G	1½
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This unique course follows a longitudinal format with monthly 3-hour lectures, presentations, panel discussions, and/or debates led by various OSU faculty and guest lecturers. The intent of the course is to present to students a wide exposure to the most relevant, contemporary, and controversial topics in bioethics presented from a wide array of experts in the disciplines intersecting bioethics.

Repeatable to a maximum of 3 or hrs. This course is graded S/U.

6050	Bioethics Symposium 2	G	1½
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This unique Symposium II course follows a longitudinal format with monthly 3-hour lectures, presentations, panel discussions, and/or debates led by various OSU faculty and guest lecturers.

Repeatable to a maximum of 3 or hrs. This course is graded S/U.

7000	Advanced Clinical Bioethics	G	3
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Building upon Clinical Bioethics (BIOETHIC 6020), this course will engage students in the more advanced processes and procedures of clinical ethical analysis, focusing on ethical reflection, negotiation, and decision making in clinical ethical scenarios. Theoretical frameworks, concepts, and applied analytical strategies will be examined in light of their usefulness for practice.

7010	End of Life Ethics	G	3
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Over 2/3rds of clinical ethics dilemmas involve end-of-life decision-making. End-of-life care and palliative care are growing fields. This course will engage the essential ethics issues involved in end-of-life care. Clinical cases and medical knowledge will be explored. The prevailing procedural ethics of our time will be utilized to discuss ethical dilemmas.

7030	History of Medical Ethics and Bioethics	G	3
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The main goal of this course is to explore the historical roots of the field of bioethics. The course will be divided into a few main parts: the first is a broad survey of key figures and movements in medical history from antiquity to modernity, including the Hippocratics, Galenic medicine, the birth of dissection, Christian hospitality, Medieval medicine, modern surgery, the age of antibiotics, etc.

7040	Bioethics and the Holocaust	G	3
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This course is designed to allow students an in-depth study of one of the most troubling periods in the history of medicine the active participation of physicians in the Holocaust. We will attempt to understand the distorted rational behind this genocide by ordinary men and women. We will also discuss, in depth, analogies to today's medical practice.

## 52 Bioethics

<b>7050</b>	<b>Pediatric and Perinatal Bioethics</b>	<b>G</b>	<b>3</b>
This course focuses on key ethical issues surrounding women's health and the pre, peri, and post natal care of the mother and the newborn, including but not limited to ethics of: pre-implantation genetic diagnosis, prenatal diagnosis, maternal decision making, in vitro fertilization, prenatal diagnosis, fetal treatment/surgery, neonatal care, genetic counseling, gene therapy, and genetic testing.			
<b>7060</b>	<b>Religious and Theological Perspectives in Bioethics</b>	<b>G</b>	<b>3</b>
This course addresses the discourses and interplay of secular, religious, and theological perspectives in the field of bioethics. One central goal of this course is to identify the thought and language of secular, immanent bioethics in comparison/contrast with religious, transcendent bioethics without glossing the thick plurality of religious differences and perspectives in the major religions			
<b>7070</b>	<b>President's Bioethics Councils</b>	<b>G</b>	<b>1½</b>
This course will survey the writings of the various president's bioethics councils beginning in 1974 to the most recent bioethics commission established by President Obama.			
<b>7080</b>	<b>Belmont Report</b>	<b>G</b>	<b>1½</b>
This course will delve deeply into the text of the Belmont Report, including reading essays in the appendices of the report and additional outside material.			
<b>7800</b>	<b>Research Methods in Bioethics</b>	<b>G</b>	<b>3</b>
Students will explore the variety of methods used to address ethical concerns surrounding clinical care, biomedical research, and health care policy. The course will equip students with analytic and practical skills to engage in research of their own.			
<b>7890</b>	<b>Clinical Bioethics, Healthcare Mediation, and Conflict Resolution</b>	<b>G</b>	<b>3</b>
This course emphasizes learn-by-doing approach to conflict resolution through online and on-site elements. The course familiarizes participants with a 'toolbox' of skills essential to conflict resolution applicable to bioethics consultations. Prereq: 6020, or permission of instructor. This course is graded S/U.			
<b>7895</b>	<b>Bioethical Issues in Genetic Counseling</b>	<b>G</b>	<b>3</b>
The course aims to give students the ethical background to lead in an ongoing national dialogue about the ethical, legal, and social implications of advances in genomic technology, reproductive health and the professional responsibility of counseling.			
<b>8000</b>	<b>Directed Readings in Bioethics</b>	<b>G</b>	<b>3</b>
This course of directed readings provides additional research preparation for a particularly high-level MA Thesis. Admission to this course requires a sponsoring faculty member and approval from the Director of the MA program. The Syllabus for this course will be written in conjunction between the student and sponsoring faculty member and approved by the Director of the MA program. Prereq: 6000-level BioEthc course, or approval of Program Director. This course is graded S/U.			
<b>8010</b>	<b>Bioethics Practicum</b>	<b>G</b>	<b>3</b>
Alongside the MA Thesis Project, the Ethics Practicum is one of two possible capstone projects in the MA program. Having selected the Ethics Practicum, students two options or fields of focus for the practicum: clinical ethics or research ethics. Both areas of focus for the practicum are based upon a Personal Learning Plan (PLP) developed in collaboration with a supervisor. Prereq: BioEthc 6000-level course. This course is graded S/U.			
<b>8020</b>	<b>Bioethics Masters Thesis</b>	<b>G</b>	<b>3</b>
The master's thesis is a carefully argued scholarly paper of approximately 12,000 to 13,000 words (roughly 50 pages). Students will under the supervision of a faculty adviser to craft and write an original argument with sources. The thesis must have a substantial research component and a focus on a suitable topic within the field of bioethics as a final element in the master's degree. Prereq: BioEthc 6000-level course. This course is graded S/U.			

## Biological Chemistry and Pharmacology

<b>3311</b>	<b>Fundamentals of Medical Biochemistry I</b>	<b>U</b>	<b>3</b>
Includes organic chemistry necessary for biochemistry. Basic structures and interactions of biomolecules in health and disease. Topics essential to human nutrition, dietetics, clinical chemistry, & paramedical fields. Proteins, enzymes, and vitamins. Prereq: Chem 1110 (102), 1210 (121), or 1220. Not open to students with credit for 311.			
<b>3312</b>	<b>Fundamentals of Medical Biochemistry and Molecular Biology II</b>	<b>U</b>	<b>3</b>
A continuation of 3311. Energy production; the chemistry and metabolism of carbohydrates, lipids and amino acids; nucleic acids and protein biosynthesis; integration and control of metabolic pathways, and the biochemistry of body fluids. Prereq: Chem 1110, 1210, or 1220.			
<b>4250</b>	<b>Undergraduate Independent Study in Pharmacology/Pharmacogenomics</b>	<b>U</b>	<b>1 - 10</b>
Offers undergraduate students the opportunity to gain research experience in laboratories in Pharmacology/Pharmacogenomics and learn the latest techniques and approaches. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs or 20 completions. This course is graded S/U.			

<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or study in an area molecular and/or cellular biochemistry under the direction of a department faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 3 completions.			
<b>4998H</b>	<b>Undergraduate Research for an Honors Program</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or study in an area of molecular and/or cellular biochemistry under the direction of a departmental faculty member. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>4999</b>	<b>Thesis Research in Biological Chemistry and Pharmacology</b>	<b>U</b>	<b>1 - 10</b>
A program of reading and research for each student with individual conferences and reports, culminating in the preparation of an honors thesis. Prereq: GPA 3.0 and above, and permission of the instructor under whose supervision the work is to be completed.			
<b>4999H</b>	<b>Honors Thesis Research in Biological Chemistry and Pharmacology</b>	<b>U</b>	<b>1 - 10</b>
A program of reading and research for each student with individual conferences and reports, culminating in the preparation of an honors thesis. Prereq: Honors status, GPA of 3.4 or higher, Junior or Senior standing, and permission of the instructor under whose supervision the work is to be completed.			
<b>5050</b>	<b>Molecular Basis of Oxidative Stress</b>	<b>U G M</b>	<b>2</b>
The inter-relationships between reactive species and development of human diseases will be the highlight of lectures and discussions. Prereq: Chem 2520, 2620, or 2920H.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G M</b>	<b>1 - 10</b>
Qualified students can conduct a minor investigation under the direction of a faculty member. Au, Sp, or Su Sem. Prereq: Course work in Biochemistry, and permission of instructor. Repeatable to a maximum of 10 or hrs or 4 completions. This course is graded S/U.			
<b>5300</b>	<b>Molecular Pharmacology</b>	<b>U G</b>	<b>2</b>
Identification of drug receptor genes and their second messenger pathways provides information unavailable from traditional approaches. We will examine how this information is used to develop new medications to treat a wide range of disorders with improving efficacy and safety. Prereq: Permission of instructor.			
<b>5400</b>	<b>Chemotherapeutic Drugs for Cancer and Infectious Diseases</b>	<b>U G</b>	<b>2</b>
Over the course of the last century a wide variety of drugs have been developed for chemotherapy of cancer and infectious disease. The mechanisms of action of these drugs involves diverse biological processes. In this course we will examine the molecular components targeted by anticancer, antimycobacterial, antifungal, antiprotozoal, anthelmintic and antiviral drugs. Prereq: Prior coursework in biochemistry or physiology or equiv., or permission of instructor.			
<b>5500</b>	<b>Cardiovascular Pharmacology</b>	<b>U G</b>	<b>2</b>
Covers basic principles of drug action for specific drug classes; including chemical properties, mechanisms of drug action, clinical uses, disposition, contraindications, adverse reactions, clinically significant drug interactions, and drug-disease interactions. Prereq: Prior coursework in biochemistry or physiology or equiv., or permission of instructor.			
<b>5510</b>	<b>Responsible Conduct in Biomedical Research</b>	<b>U G M</b>	<b>1 - 2</b>
The broad intent of this course is to highlight the importance of responsible conduct in biomedical research and to explore how critical ethical thinking can be used to analyze personal decision-making, public regulation, and the law concerning advanced biomedical sciences/technologies and their clinical applications. This course will introduce students to professional and ethical issues.			
<b>5555</b>	<b>Epigenetics</b>	<b>U G M</b>	<b>3</b>
This course will provide an in depth understanding of the molecular mechanisms underlying epigenetic inheritance, which is the inheritance of traits not encoded in the sequence of a genome. In addition, the course will provide students an opportunity to demonstrate command of the subject matter through a presentation from the current scientific literature. Prereq: MolGen 4606; or Biochem 5613, 5614, and 5615; or Grad standing; or permission of instructor.			
<b>5600</b>	<b>Introduction to General Pharmacology</b>	<b>U G</b>	<b>3</b>
Introductory course emphasizing the general principles of pharmacology using a systems-based and mechanism-based approach. The course provides a simple overview of the subject. Prereq: Prior coursework in physiology, or permission of instructor. Not open to students with credit for Pharmacol 600.			
<b>5700</b>	<b>Introduction to Personalized Therapeutics and Pharmacogenomics</b>	<b>U G</b>	<b>3</b>
Exploration of the trend to therapy tailored to the individual patient rather than "one drug fits all;" inter-individual differences in drug responses, with emphasis on genetic and genomic factors; ethical, regulatory and economic issues that impact drug therapies. Introductory biology course recommended.			

## Biological Chemistry and Pharmacology 53

<b>5733</b>	<b>Human Genetics</b>	<b>U G M</b>	<b>2</b>
The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy, transgenes, and specific pathological disorders. Open to seniors who have completed the prerequisites. Prereq: MolGen 4500 (500) or 4606 (606), or equiv. Not open to students with credit for 733, MolGen 5733 (733), or Pathol 5733 (733). Cross-listed in MolGen and Pathol.			
<b>5800</b>	<b>Stem Cell Biology and Applications for Human Regenerative Medicine</b>	<b>U G M</b>	<b>3</b>
Basics of stem cell biology, as applied to multiple disease models of the brain and other organs, cancer research and aging. Practical examples and models from patients with neurodevelopmental and neurodegenerative diseases. Demonstration of laboratory strategies and techniques will be presented. Prereq: One year of basic biology, or permission of instructor.			
<b>5824</b>	<b>Pharmacology of the Nervous System</b>	<b>U G</b>	<b>3</b>
Pharmacological agents are valuable tools with which to probe the molecular and cellular basis of brain function. The scientific rational underlying the use of drugs to treat a wide range of neurologic and psychiatric disorders will be examined. Prereq: Undergraduate Biochemistry or Physiology (or equivalent), or permission of instructor. Cross-listed in Psych.			
<b>5852</b>	<b>Biology of Aging</b>	<b>U G</b>	<b>2</b>
Covers molecular, cellular and organismal aspects of aging. Experimental evidence as well as current and historically important theories of aging will be discussed. The course will rely on analysis of original peer-reviewed publications. Prereq: Not open to students with credit for 5852 (852). CT Admis Cond course.			
<b>6701</b>	<b>Advanced Biochemistry: Molecular Biology</b>	<b>G</b>	<b>3</b>
An advanced treatment of the biochemical principles of gene and genome function. Prereq: Biochem 5615 and MolGen 4500, or equivs. Concur: BioPhm 6761 or Biochem 6761; or permission of instructor. Not open to students with credit for Biochem 6701, Micrbio 6080, 6010, or MolGen 5701. Cross-listed in Biochem.			
<b>6761</b>	<b>Advanced Biochemistry: Macromolecular Structure and Function</b>	<b>G</b>	<b>3</b>
An advanced treatment of the physical and chemical properties, biological function, and structural biology of proteins and nucleic acids. Prereq: Biochem 5615 (615), and Chem 2520 (253), 2550 (255) and 4210 (521), or equiv; or permission of instructor. Not open to students with credit for 6761 (761 and 766), Chem 761 and 766, or Biochem 6761 (761 and 766). Cross-listed in Biochem.			
<b>6785</b>	<b>DNA Microarray Technology</b>	<b>G M</b>	<b>1</b>
Covers the major areas of microarray technology, including theory, target preparation and labeling, manufacturing methods, imaging, and analysis and mining of data. Offered every other year. Prereq: BioChem 511 or equiv. Not open to students with credit for 785.			
<b>6850</b>	<b>Research in Progress Seminars</b>	<b>G</b>	<b>1</b>
Seminar presentations from faculty laboratories of ongoing research. Prereq: Grad standing. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.			
<b>7050</b>	<b>Neurobiology of Disease</b>	<b>G</b>	<b>3</b>
Neurobiology of Disease will explore the basis of major diseases affecting the nervous system. Prereq: Permission of instructor. Not open to students with credit for BioPhm 705. Cross-listed in NeuroSc 7050 (705).			
<b>7193.01</b>	<b>Individual Studies in Pharmacology</b>	<b>G</b>	<b>1 - 30</b>
Digitalis pharmacodynamics; neuropharmacology; endocrine pharmacology; cardiovascular pharmacology, autonomic pharmacology, clinical pharmacology; biochemical pharmacology; pharmacogenomics; toxicology. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>7510</b>	<b>Professional and Ethical Issues in Biomedical Sciences</b>	<b>G</b>	<b>2</b>
A discussion course based on case scenarios dealing with ethical issues facing biomedical researchers, such as publishing practices, confidentiality, mentoring. Prereq: Grad standing, and enrollment in Biomedical Sciences program. This course is graded S/U. Cross-listed in VetBios 751.			
<b>7550</b>	<b>Research Applications of Clinical Pharmacology</b>	<b>G</b>	<b>3</b>
Application of basic and advanced concepts in pharmacology to contemporary research literature to solidify understanding of the pharmacologic principles underlying the individualization of drug therapy and contemporary drug development. Fundamentals of clinical pharmacology for the development, evaluation, and clinical use of pharmaceutical products. Prereq: 5600, HthRhSc 5510, Phr 5010, or other general pharmacology course; or permission of instructor. Cross-listed in Phr.			
<b>7560</b>	<b>Clinical Trials I: Design and Regulation</b>	<b>G</b>	<b>3</b>
This course provides a fundamental overview of clinical trial design, methods, and regulation with an emphasis on medical product development, clinical trial protocols, preclinical research requirements, and the appraisal of published clinical trials. Prereq: Enrollment in the MS Pharmacology program, or permission of instructor. Not open to students with credit for Nursing 7770 or Phr 7770. Cross-listed in Nursing and Phr.			

<b>7561</b>	<b>Clinical Trials II: Site Management and Study Leadership</b>	<b>G</b>	<b>3</b>
This course provides a fundamental overview of best practices of clinical trial study and site management, including an emphasis on data, safety, and quality management, and study team leadership. Prereq: 7560, Nursing 7560, or Phr 7560, or permission of instructor. Not open to students with credit for Nursing 7405 or Phr 7405. Cross-listed in Nursing and Phr.			
<b>7599</b>	<b>Capstone in Applied Clinical and Preclinical Research</b>	<b>G</b>	<b>1 - 12</b>
Capstone project or practicum for students in the master's program in Applied Clinical and Preclinical Research. Culminating learning activity integrating core and specialization coursework. Capstone project or practicum performed at an organization involved with clinical or preclinical research with the oversight of a faculty advisor and site mentor. Prereq: Enrollment in the master's program in Applied Clinical and Preclinical Research, or permission of the program director. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U. Cross-listed in Nursing and Phr.			
<b>7781</b>	<b>Animal Models of Human Disease</b>	<b>G M</b>	<b>1</b>
Transgenic and knockout mouse technology and examples of models for genetic disease with each pattern of inheritance. Examples are collagen diseases (osteogenesis imperfecta), Huntington diseases, muscular dystrophy, and Fredeireich ataxia. Prereq: MolGen 5701 (701) or Biochem 5701 (702). Not open to students with credit for MolBioch 781.			
<b>7807</b>	<b>Gene Expression: Post-Transcriptional Control</b>	<b>G</b>	<b>3</b>
Intensive study of problems in the general area of post-transcriptional control of gene expression. The course consists of student presentations and class evaluations of recently published results in these fields. Prereq: 6 cr hrs at the Grad level, or permission of instructor. Not open to students with credit for MolGen 7807 (880.07) or VetBios 7807 (880.07). Cross-listed in MolGen and VetBios.			
<b>7823</b>	<b>Selected Topics in Molecular Medicine</b>	<b>G M</b>	<b>2</b>
The focus of this course is to understand the molecular bases of selective diseases. The disease focus may vary each year, and can include cancer, neurological disorders, and the roles of stem cells and metabolism in aging. Students are encouraged to check the syllabus for the selective topics each year. Prereq: 1 yr of Grad Biochem, or permission of instructor.			
<b>7828</b>	<b>Signaling Pathways and Human Disease</b>	<b>G</b>	<b>2</b>
Current concepts of signal transduction and its role in controlling genes involved in various disease states, including cardiovascular diseases, neurological diseases, and cancer. Prereq: 1 yr of Grad Biochem, or permission of instructor.			
<b>7831</b>	<b>Eukaryotic Genome: Structure &amp; Expression</b>	<b>G</b>	<b>2</b>
Current research on the structure and expression of genes in higher eukaryotes. Course includes student critiques and presentations of research papers. Prereq: Biochem 5701 or MolGen 5701 or equiv. Not open to students with credit for 831, MVIMG 831, or MolGen 831.			
<b>8300</b>	<b>Molecular Pharmacology and Human Disease</b>	<b>G</b>	<b>2</b>
Molecular mechanisms of actions of blockbuster drugs in the treatment of human disease. Prereq: Pharmacol 600, 600D, or IBGP 702, or permission of instructor/course director. Not open to students with credit for Pharmacol 830.			
<b>8999</b>	<b>Research in Biological Chemistry and Pharmacology</b>	<b>G</b>	<b>1 - 12</b>
Research for thesis or dissertation purposes only. Offered all semesters. Prereq: Grad standing. Repeatable to a maximum of 72 cr hrs or 15 completions. This course is graded S/U.			

## Biology

<b>1101</b>	<b>Introductory Biology</b>	<b>U</b>	<b>4</b>
Basic principles of biology; topics include the nature of science, organismal diversity, evolution, ecology, genetics, reproduction, and cellular structure and function. Not intended students majoring in one of the biological sciences. Prereq: Not open to students with credit for 1101E, 1113 (113), 1113H (115H), 101, Entmlyg 1101 (101), or MolGen 1101 (PintBio101). This course is available for EM credit. GE nat sci bio course.			
<b>1102</b>	<b>Human Biology</b>	<b>U</b>	<b>4</b>
Exploration of human biology; topics include structure and physiological function, reproduction and development, genetics and disease, ecology, and evolution. Not intended for students majoring in one of the biological sciences. Prereq: Not open to students with credit for 102. This course is available for EM credit. GE nat sci bio course.			
<b>1105</b>	<b>Human Biology in Cinema</b>	<b>U</b>	<b>3</b>
Human Biology in Cinema will show that mainstream films with a core biological theme can be entertaining AND educational and that having some basic biological insights will enhance your comprehension and appreciation of these films. Lectures and discussions will cover basic principles in biology that will help elucidate the content of each film. GE nat sci bio course.			

## 54 Biology

**1110 Biology for the Health Sciences** U 4

A survey of biological topics including evolution; structure and function; information flow, exchange and storage; pathways and transformations of energy and matter; and systems intended as preparation for Pre-Nursing and Pre-HRS students. Not intended for students on a Pre-Medicine or related track, or for students intending to major in biology or related areas. Prereq: Not open to students with credit for 1101, 1102, 1113, or 1114. GE nat sci bio course.

**1113 Biological Sciences: Energy Transfer and Development** U 4

Exploration of biology and biological principles; evolution and the origin of life, cellular structure and function, bioenergetics, and genetics. A broad introduction to biology comprises both Biology 1113 and 1114.

Prereq: Math 1130 (130), 1148, 1150, or above, or Math Placement Level L or M. Prereq or concur: Chem 1110 (101), 1210 (121), 1610, or 1910H (201H), or permission of course coordinator. Not open to students with credit for 113. This course is available for EM credit. GE nat sci bio course. NS Admis Cond course.

**1113E Biological Sciences: Energy Transfer and Development** U 4

Exploration of biology and biological principles; evolution and the origin of life, cellular structure and function, bioenergetics, and genetics. A broad introduction to biology comprises both Biology 1113E and 1114E.

Prereq: Honors standing; and Math 1149 or 1150 or above, or Math Placement Level L. Prereq or concur: Chem 1210, 1610, or 1910H, or permission of course coordinator. GE nat sci bio course.

**1113H Biological Sciences: Energy Transfer and Development** U 4

Exploration of biology and biological principles; evolution and the origin of life, cellular structure and function, bioenergetics, and genetics. A broad introduction to biology comprises both Biology 1113H and 1114H.

Prereq: Honors standing; and Math 1149 or 1150 or above, or Math Placement Level L. Prereq or concur: Chem 1210, 1610, or 1910H, or permission of course coordinator. Not open to students with credit for 115H. GE nat sci bio course. NS Admis Cond course.

**1114 Biological Sciences: Form, Function, Diversity, and Ecology** U 4

Exploration of biology and biological principles; evolution and speciation, diversity in structure, function, behavior, and ecology among prokaryotes and eukaryotes. A broad introduction to biology comprises both Biology 1113 and 1114.

Prereq: Math 1130 (130), 1148, or 1150 or above, or Math Placement Level L or M. Prereq or concur: Chem 1110 (101), 1210 (121), 1610, or 1910H (201H), or permission of course coordinator. Not open to students with credit for 114. This course is available for EM credit. GE nat sci bio course. NS Admis Cond course.

**1114E Biological Sciences: Form, Function, Diversity, and Ecology** U 4

Exploration of biology and biological principles; evolution and speciation, diversity in structure, function, behavior, and ecology among prokaryotes and eukaryotes. A broad introduction to biology comprises both Biology 1113E and 1114E.

Prereq: Honors standing; and Math 1149, 1150, or above, or Math Placement Level L. Prereq or concur: Chem 1210, 1610, or 1910H, or permission of course coordinator. GE nat sci bio course.

**1114H Biological Sciences: Form, Function, Diversity, and Ecology** U 4

Exploration of biology and biological principles; evolution and speciation, diversity in structure, function, behavior, and ecology among prokaryotes and eukaryotes. A broad introduction to biology comprises both Biology 1113H and 1114H.

Prereq: Honors standing; and Math 1149, 1150, or above, or Math Placement Level L. Prereq or concur: Chem 1210 (121), 1610, or 1910H (201H), or permission of course coordinator. Not open to students with credit for 116 or 116H. GE nat sci bio course. NS Admis Cond course.

**1131 Peer Led Team Learning for Biology 1113 Students** U 1

Peer-led team learning (PLTL) provides a structure within which students will actively work together in groups to complete a series of activities and deepen their understanding of concepts associated with Biology 1113. A peer leader will work with the group on challenging and relevant activities to prepare biology students to apply scientific reasoning to authentic problems.

Concur: Biology 1113. This course is graded S/U.

**1141 Peer Led Team Learning for Biology 1114 Students** U 1

Peer-led team learning (PLTL) provides a structure within which students will actively work together in groups to complete a series of activities and deepen their understanding of concepts associated with Biology 1114. A peer leader will work with the group on challenging and relevant activities to prepare biology students to apply scientific reasoning to authentic problems.

Concur: 1114. This course is graded S/U.

**2194 Group Studies** U 1 - 4

Group study of a selected topic in biology not provided by other courses.

Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 4 completions.

**2200 Genome Biology** U 1

DNA sequencing and analysis of bacteriophage genomes. Special emphasis on mycobacteriophage as part of the Howard Hughes Medical Institute National Genomics Research Initiative.

Prereq: 1113 (with participation in the Howard Hughes Medical Institute National Genomics Research Initiative), or permission of instructor. Cross-listed in Micrbio.

**2797 Study at a Foreign Institution** U 1 - 10

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

Prereq: Permission of advisor. Repeatable to a maximum of 30 cr hrs or 8 completions.

**3401 Integrated Biology** U 4

A case studies approach is used to gain a better understanding of biological concepts and principles. This course is designed for biology majors.

Prereq: 1113, 1114, Chem 1220, and Math 1140, or 1148 and 1149, or 1150 or above; or permission of instructor.

**4191 Internship in Biology** U 1 - 5

A cooperative education or internship assignment conducted under the supervision of a faculty member.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 8 completions. This course is graded S/U.

**4193 Individual Studies** U 1 - 5

A program of individual study in the biological sciences appropriate for the student's needs.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**4194 Group Studies** U 2 - 4

Group studies of topics not otherwise offered in Biology.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 7 completions.

**4797 Study at a Foreign Institution** U 1 - 15

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

Prereq: Permission of advisor. Repeatable to a maximum of 30 cr hrs or 8 completions.

**4798 Biological Roots in England** U 3

A short-term study-abroad course on the history of science in England, with emphasis on biology.

Prereq: 6 cr hrs taken in Biological Sciences. Not open to students with credit for 500.

**4998 Research** U 1 - 5

Undergraduate research in biology.

Prereq: Permission of advisor. Repeatable to a maximum of 30 cr hrs or 8 completions. This course is graded S/U.

**4998H Honors Undergraduate Research** U 1 - 5

Undergraduate research in biology.

Prereq: Honors standing, and permission of advisor. This course is graded S/U.

**4999 Thesis Research** U 1 - 5

A program of individual research in the biological sciences appropriate for the student's needs and culminating in a thesis and oral examination.

Prereq: 1113 (113) or 1113H (115H), and 1114 (114) or 1114H (116H), and permission of advisor. Repeatable to a maximum of 12 cr hrs or 8 completions. This course is graded S/U.

**4999H Honors Thesis Research** U 1 - 5

A program of individual research in the biological sciences appropriate for the student's needs and culminating in an honors thesis and oral examination.

Prereq: Honors standing, and 1113 (113) or 1114 (114), and permission of advisor. Repeatable to a maximum of 12 cr hrs or 8 completions. This course is graded S/U.

**5001.01 Topics in Biology Teaching** U G 1

Students actively participate in workshops and other activities, including the development of new instructional materials and SOTL projects, that enhance their preparedness for college teaching.

Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

**5001.02 Topics in Biology Teaching** U G 1

Students actively participate in workshops and other activities, including the development of new instructional materials and SOTL projects, that enhance their preparedness for college teaching. Students will complete a portfolio assignment. Students in the Graduate Interdisciplinary Specialization will be able to apply each instance of this course as an elective up to a maximum of 3 credits.

Repeatable to a maximum of 3 cr hrs.

**6001 Biology College Teaching** G 2

Students take a scholarly approach to studying theory-based methods to help undergraduates learn biology. Students consider methods as an instructor, peer reviewer, and student.

Prereq: Grad standing in BioSci. Not open to students with credit for Biology 701.

**6193 Graduate Independent Studies** G 1 - 4

Graduate independent studies.

Repeatable to a maximum of 4 cr hrs or 4 completions. This course is graded S/U.

## Biomedical Engineering

**2000 Introduction to BME** U 3

Introduction to the application of engineering to modern healthcare utilizing lectures from engineering, medicine, and life science.

Prereq: Permission of instructor. Not open to students with credit for 202 or 500.



## Biomedical Engineering 55

**2001 Professional Development U 1**

Development of professional skills; engineering economy; project planning; ethics, best business practices.  
Prereq or concur: 2000. Not open to students with credit for 4900.

**2193 Individual Studies in Biomedical Engineering U 1 - 12**

Provides the opportunity to pursue special studies or research in biomedical engineering not otherwise covered.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions. This course is graded S/U.

**2194 Group Studies in Biomedical Engineering U 1 - 6**

Provides groups of students opportunities to pursue special studies not otherwise offered.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

**2200 Quantitative Principles of Cellular and Molecular Systems U 3**

An introduction to quantitative principles in molecular and cellular biology in the context of potential biomedical engineering applications. Topics covered: molecular structure and function; receptor-ligand and antigen-antibody specificity; cell energetics; enzyme catalysis, genetic information, disease state; Cell-surface interaction.  
Prereq: Biology 1113. Concur: 2000.

**2700 Numerical Simulations in BME U 2**

Focuses on the application of computer-based numerical and graphical display skills for solving problems relevant to biomedical engineering.  
Prereq: 2000, Engr 1182 or 1282, MechEng 2040, Math 2174, and Biology 1113 or equiv, and enrollment in BiomedE major.

**2800 Anatomy for Engineers U 3**

This course investigates the basic anatomical structure and physiological function of the human body with a biomechanical emphasis.  
Prereq: Enrollment in Biomedical Engineering pre-major or major; or permission of instructor. Not open to students with credit for Anatomy 2220.

**3701 Biomedical Engineering Domain Lab U 2**

Laboratory course for Biomedical Engineering majors. Biomedical laboratory skills, as well as designing, performing and analyzing experiments, documentation, and technical communication skills are developed in this course.  
Prereq: 2000 and Stat 3450; or permission of instructor. Not open to students with credit for 4711, 4712, 4713, 4714, 4715, or 4716.

**3702 Measurements and Instrumentation Lab U 3**

Engineering fundamentals and hands-on experiments for measuring and interpreting data from living systems; Analysis of signals generated by bioelectrical potentials; Interpretation of bioelectrical signals to human physiology and functions.  
Prereq: 2000, Anatomy 2220, and Stat 3450; or permission of instructor.

**3703 Quantitative Physiology U 3**

Introduces students to the mathematical and numerical techniques used to develop, solve and analyze quantitative models of physiological systems.  
Prereq: 2700, Anatomy 2220, and Math 2174; or permission of instructor.

**4110 Bioimaging U 3**

Introduction to medical imaging techniques like x-ray, computed tomography, magnetic resonance and ultrasound.  
Prereq: 2000, Physics 1251, Math 2174, Anatomy 2220 or EEOB 2520; or permission of instructor.

**4193 Individual Studies in Biomedical Engineering U 1 - 12**

Provides the opportunity to pursue special studies or research in biomedical engineering not otherwise covered.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions. This course is graded S/U.

**4194 Group Studies in Biomedical Engineering U 1 - 6**

Provides groups of students opportunities to pursue special studies not otherwise offered.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

**4210 Biotransport U 3**

Covers key transport concepts in biomedical engineering. Emphasis is put on mass and momentum transport with applications related to biology, medical science and biotechnology.  
Prereq: 2000 and Math 2174, or permission of instructor. Concur: MechEng 3500 or FABEng 3120.

**4310 Biomaterials U 3**

Principles of materials science; biocompatibility and biological reactions to implanted materials; natural biomaterials and synthetic materials used in biological applications.  
Prereq: 2000, MatScEn 2010, and Math 2174; or permission of instructor.

**4410 Biomechanics U 3**

Mechanical characterization of biological tissues at the cellular, organ, and system level; exploration of biomechanical factors of physiological and pathological conditions.  
Prereq: 2000, Math 2174, and MechEng 2040; or permission of instructor.

**4510 Cell, Molecular, and Tissue Engineering U 3**

Application of engineering methods to study, measure, repair, or replace biological functions and the molecular cellular or tissue-level length scales.  
Prereq: 2000 and Math 2174, or permission of instructor. Concur: 2200 or Biochem 4511.

**4610 Biomedical Micro/Nanotechnology U 3**

Introduction to micro/nanotechnology in biomedical settings, including micro/nanotechnologies used to investigate biological systems, physiological responses to nanotherapeutics, and first principles of microfluidics and microfabrication.  
Prereq: 2000, MatScEn 2010, and Biochem 4511 or BiomedE 2200; or permission of instructor.

**4711 Bioimaging Lab U ½**

Hands-on lab that teaches students technical skills associated with Bioimaging. Lab components include hypothesis testing and analysis, computer simulation, lab safety and instrument training, and technical communication.  
Concur: 4110, or permission of instructor.

**4712 Biotransport Lab U ½**

Hands-on lab that teaches students technical skills associated with Biotransport. Lab components include hypothesis testing and analysis, computer simulation, lab safety and instrument training, and technical communication.  
Concur: 4210, or permission of instructor.

**4713 Biomaterials Lab U ½**

Hands-on lab that teaches students technical skills associated with Biomaterials. Lab components include hypothesis testing and analysis, computer simulation, lab safety and instrument training, and technical communication.  
Concur: 4310, or permission of instructor.

**4714 Biomechanics Lab U ½**

Hands-on lab that teaches students technical skills associated with Biomechanics. Lab components include hypothesis testing and analysis, computer simulation, lab safety and instrument training, and technical communication.  
Concur: 4410, or permission of instructor.

**4715 Molecular, Cell, and Tissue Engineering Lab U ½**

Hands-on lab that teaches students technical skills associated with Cell and Tissue Engineering. Lab components include hypothesis testing and analysis, computer simulation, lab safety and instrument training, and technical communication.  
Concur: 4510, or permission of instructor.

**4716 BME Micro/Nanotechnology Lab U ½**

Hands-on lab that teaches students technical skills associated with BME Micro/Nanotechnology. Lab components include hypothesis testing and analysis, computer simulation, lab safety and instrument training, and technical communication.  
Concur: 4610, or permission of instructor.

**4901 Biomedical Engineering Capstone Design I U 3**

First course in a two-course BME capstone sequence. Introduction to design principles; challenges of biomedical device design; projects focus on helping persons with disabilities.  
Prereq: Sr standing in BiomedE. Not open to students with credit for 501 or 565.01.

**4902 Biomedical Engineering Capstone Design II U 3**

Second course in a two-course BME capstone sequence. Applying design principles; challenges of biomedical device design; engineering and testing devices that focus on helping persons with disabilities.  
Prereq: 4901, or permission of instructor. Not open to students with credit for 502 or 565.02.

**4998.01 Undergraduate Research in Biomedical Engineering U 1 - 6**

Individual Studies in Biomedical Engineering.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

**4998.02 Undergraduate Research in Biomedical Engineering U 1 - 12**

Individual Studies in Biomedical Engineering.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions. This course is graded S/U.

**4999 Biomedical Engineering Undergraduate Thesis Research U 1 - 6**

Students are offered the opportunity to pursue an independent distinction project/research. Student presentations and thesis writing included.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

**4999H Biomedical Engineering Undergraduate Honors Thesis Research U 1 - 6**

Honors program students are offered the opportunity to pursue an independent distinction project/research. Student presentations and thesis writing included.  
Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

**5001 Cardiovascular Bioengineering U G 3**

Overview of biomedical engineering approaches in imaging and intervention in cardiovascular medicine.  
Prereq: Sr or Grad standing in Engineering or Medicine, or permission of instructor. Not open to students with credit for 701.

## 56 Biomedical Engineering

<b>5110</b>	<b>Biomedical Microscopic Imaging</b>	<b>U G</b>	<b>3</b>
Principles and applications of microscopy techniques (light, electron and atomic force microscopy) for biomedical research. Prereq: 4110 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 611.			
<b>5120</b>	<b>Biomedical Optics</b>	<b>U G</b>	<b>3</b>
Introduction of light-tissue interaction, optical imaging, and spectroscopy. Prereq: 4110 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 612.			
<b>5170</b>	<b>Fundamentals of Medical Imaging</b>	<b>U G</b>	<b>3</b>
Fundamentals of mathematical and physical principles and signals and systems concepts involved in medical imaging modalities of x-ray, computed tomography, magnetic resonance and ultrasound. Prereq: Math 2177, or Grad standing, or permission of instructor.			
<b>5177</b>	<b>Biomedical Atomic Force Microscopy</b>	<b>U G</b>	<b>3</b>
Applications of Atomic Force Microscopy (AFM) in bio-imaging, biomechanics, and nano-manipulation. Prereq: 5110 (611) or equiv, and Sr or Grad standing; or permission of instructor.			
<b>5186</b>	<b>Biomedical Ultrasound</b>	<b>U G</b>	<b>3</b>
Introduction to use of ultrasound in biomedical applications, including interaction of ultrasound with tissue; generation, reception and interpretation of ultrasonic signals; and clinical instrumentation. Prereq: 4110 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 686 or 716.			
<b>5193</b>	<b>Individual Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 12</b>
Provides the opportunity to pursue special studies or research in biomedical engineering not otherwise covered. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 10 completions. This course is graded S/U.			
<b>5194.01</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.02</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.03</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.04</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Not open to students with credit for 510. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.05</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.06</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.07</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.08</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5194.09</b>	<b>Group Studies in Biomedical Engineering</b>	<b>U G</b>	<b>1 - 6</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5310</b>	<b>Advanced Biomaterials</b>	<b>U G</b>	<b>3</b>
Basic and advanced concepts of materials science; biocompatibility and biological reactions to implanted materials; natural biomaterials and synthetic materials used in biomedical applications. Prereq: 4310 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 631.			
<b>5353</b>	<b>Hard-Tissue Biomaterials</b>	<b>U G</b>	<b>3</b>
In-depth literature review of selected current concepts in the material science of hard tissues and related implant materials. Prereq: 5310, or permission of instructor. Not open to students with credit for 733.			

<b>5359</b>	<b>Extracellular Matrix in BME</b>	<b>U G</b>	<b>3</b>
Extracellular matrix (ECM) present in mammalian tissue(s) is important for the integrity and tensile strength of the underlying tissue as well as for cell-matrix interactions and matrix mineralization. This course provides an overview of the composition, structure and function of ECM and its application(s) for the BME domains of biomaterials, tissue engineering and biomechanics. Prereq: 4310 and Chem 2310; or Grad standing; or permission of instructor. Not open to students with credit for 632 or 739.			
<b>5420</b>	<b>Mechanobiology</b>	<b>U G</b>	<b>3</b>
Introduction to the incorporation of living components and compatible biomaterials to study, repair, or replace biological functions. Prereq: 4410, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 642.			
<b>5421</b>	<b>Tissue Mechanics</b>	<b>U G</b>	<b>3</b>
Mechanical characteristics and behavior of tissues at the organ and system level and how these properties relate to physiological and pathological function. Prereq: 4410 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 641 or 741.			
<b>5430</b>	<b>Finite Element Applications in BME</b>	<b>U G</b>	<b>3</b>
The finite element method for solution of differential equations for modeling biomedical engineering applications (implemented using COMSOL Multiphysics software). Prereq: Math 2177 or equiv, and Anatomy 2220 or equiv, and Sr or Grad standing; or permission of instructor. Not open to students with credit for 643.			
<b>5470</b>	<b>Cell &amp; Tissue Mechanics</b>	<b>U G</b>	<b>3</b>
This course will focus on the application of mechanics to biological cells and tissues. We will explore experimental methods used to measure mechanical properties of cells and tissues and mathematical models used to interpret experimental observations of cell and tissue mechanics. Computational mechanics and FE models will be used to investigate cell and tissue mechanics. Prereq: 4410, and MechEng 2040, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 740.			
<b>5510</b>	<b>Advanced Tissue Engineering</b>	<b>U G</b>	<b>3</b>
The incorporation of living components and compatible biomaterials to study, repair, or replace biological functions. Prereq: 4510 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 651.			
<b>5550</b>	<b>Engineering Principles in Cancer</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to introduce engineering principles in the context of cancer progression and therapy. Prereq: MechEng 3500, 3503, or CBE 2420; or permission of instructor. Not open to students with credit for CBE 5550 or MechEng 5550. Cross-listed in CBE and MechEng.			
<b>5560</b>	<b>Biomedical Engineering Applications in Cancer Biology</b>	<b>U G</b>	<b>3</b>
Introduction to cancer biology and the application of biomedical engineering disciplines, such as biomaterials, biomechanics, bioimaging, cell and tissue engineering, to fundamental and applied cancer research. Prereq: Biology 1113; and BiomedE 4110, or 4310, or 4410, or 4510; or permission of instructor.			
<b>5580</b>	<b>Excitable Cell Engineering</b>	<b>U G</b>	<b>3</b>
Quantitative approaches to understanding excitable cell function. Advanced engineering methods applied to study these specialized cells will be addressed. Prereq: Math 415 or equiv, and EEOB 3510 (415) or equiv; or Grad standing in BiomedE; or permission of instructor.			
<b>5610</b>	<b>Biomedical Microdevices</b>	<b>U G</b>	<b>3</b>
Course covers the application of microdevices for biomedical applications, including review of microfabrication and biophysical chemistry. Discussion and analysis of current research. Prereq: 4610 or equiv, or Grad standing, or permission of instructor. Not open to students with credit for 661 or 762.			
<b>5635</b>	<b>Cellular Nanotechnology</b>	<b>U G</b>	<b>3</b>
Application of nanotechnology to cells for sensing and subcellular manipulation. Synthesis and biological modification of quantum dots and magnetic nanostructures, their unique material properties, and their application. Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 765 or ChBE 735. Cross-listed in CBE 5735.			
<b>5639</b>	<b>Medical Device Development and Regulation</b>	<b>U G</b>	<b>3</b>
Basic principles and essential steps for medical device design and commercialization. Prereq: 2000, and Sr standing; or Grad standing; or permission of instructor.			
<b>5661</b>	<b>Biomedical Nanotechnology I</b>	<b>U G</b>	<b>3</b>
Survey of biomedical micro and nanotechnology with particular emphasis on design and construction strategies for therapeutic nanodevices incorporating biological components. Prereq: 4610 or equiv, and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 761. Cross-listed in CBE 5769.			

## 5663 Introduction to Microfluidics and Nanofluidics U G 3

Principles of incompressible fluid mechanics and electrokinetic phenomena at the micro and nanoscale; biomedical applications with a laboratory illustrating fabrication techniques and experimental methods.

Prereq: MechEng 3503 or equiv, or Grad standing, or permission of instructor. Not open to students with credit for 763 or MechEng 715. Cross-listed in MechEng 6515.

## 5667 BioMEMS Microfabrication U G 3

A detailed overview of microfabrication technologies, including silicon microfabrication, polymer microfabrication, and advanced microfabrication topics, with application to specific MEMS and BioMEMS devices.

Prereq: Sr or Grad standing in Engineering, or permission of instructor.

## 5668 Biomedical Microtransducers U G 3

Examination of the Micro-Electro-Mechanical-Systems (MEMS) as a tool for detecting signals or performing functions for biomedical research and clinical purposes.

Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 768.

## 5810 Biomedical Industry and Professionalism Seminar U G 1

Seminar series for medical product industry. Speakers will be invited from companies relevant to medical product development and industry. Students will also gain skills in professional etiquette, and creating a design portfolio and resume for internships and careers in medical product development.

Prereq: Sr or Grad standing in Engr, or permission of instructor. Repeatable to a maximum of 2 or hrs. This course is graded S/U.

## 5901 Medical Product Development I U G 3

First course in a two-course sequence, focused on taking a medical product or device from concept/prototype to commercialization. Topics include medical product or device testing, IP protection, business models, manufacturability, FDA approvals, and commercialization.

Prereq: 4902, Engr 5902.02H, or equiv.; and permission of instructor.

## 5902 Medical Product Development II U G 3

Second course in a two-course sequence, focused on taking a medical product or device from concept/prototype to commercialization. Topics include medical product or device testing, IP protection, business models, manufacturability, FDA approvals, and commercialization.

Prereq: 5901, or permission of instructor.

## 6000 Scientific Methods in Biomedical Engineering G 1

Instruction on basic concepts and skills necessary for graduate students in Biomedical Engineering including literature search, proposal preparation, critical evaluation, and research presentation.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 600.

## 6983 Research Ethics G 2

Introduction to professional and ethical issues confronting biomedical research and researchers and approaches to dealing with such issues.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 883.

## 6999 Biomedical Engineering Research for Thesis G 1 - 16

Research for thesis purposes only.

Prereq: Permission of instructor. Repeatable. This course is graded S/U.

## 8193 Individual Studies in Biomedical Engineering G 1 - 16

Provides the opportunity to pursue special studies or research in biomedical engineering not otherwise covered.

Prereq: Permission of instructor. Repeatable. This course is graded S/U.

## 8194 Group Studies in Biomedical Engineering G 1 - 6

Provides groups of students opportunities to pursue special studies not otherwise offered.

Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

## 8810 Biomedical Engineering Seminars I G 0

First course in two course sequence. Seminar series for introducing the state-of-the-arts development of biomedical engineering.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 881.01, 881.02, or 881.03. This course is progress graded (S/U).

## 8811 Biomedical Engineering Seminars II G 1

Second course in two course sequence. This is a seminar series for introducing the state-of-the-arts development of biomedical engineering.

Prereq: 8810 (881.01 or 881.02), or permission of instructor. Not open to students with credit for 881.03. This course is graded S/U.

## 8812 Biomedical Engineering Seminars III G 0

Seminar series for introducing the state-of-the-arts development of biomedical engineering.

Prereq: 8811 or 881.03, or permission of instructor. Not open to students with credit for 881.04 or 881.05. This course is progress graded (S/U).

## 8813 Biomedical Engineering Seminars IV G 1

Second course in two course sequence. This is a Seminar series for introducing the state-of-the-arts development of biomedical engineering.

Prereq: 8812 (881.04 or 881.05), or permission of instructor. Not open to students with credit for 881.06. This course is graded S/U.

## 8999 Biomedical Engineering Research for Dissertation G 1 - 16

Research for dissertation purposes only.

Prereq: Permission of instructor. Repeatable. This course is graded S/U.

## Biomedical Informatics

## 5710 Introduction to Biomedical Informatics U G 3

A survey of biomedical informatics theories and methods employed in the design, implementation and management of information systems supporting basic science, clinical and translational research, clinical care, and public health. Recommended course work in computer science, statistics, anatomy, physiology, and medical terminology.

Prereq: Not open to students with credit for 710.

## 5730 Introduction to Bioinformatics U G 3

Introduces students to basic topics of bioinformatics including sequence analyses, proteomics, microarrays, regulatory networks, sequence and protein databases. Recommended background in molecular biology and computer science.

Prereq: Not open to students with credit for IBGP 730.

## 5740 Introduction to Research Informatics U G 3

A survey of biomedical informatics theories and methods employed in the design, implementation and management of clinical and translational research programs.

Recommended experience with computer science, statistics, anatomy, medical terminology, and molecular biology.

## 5750 Methods in Biomedical Informatics U G 3

An intensive, application-oriented survey of methods used during the course of the design, implementation and evaluation of BMI platforms, including clinical info systems, decision support systems, databases, elec, data capture instruments, data visualization tools and other analytical "pipelines". These methods span a broad spectrum from information needs assessments to systems evaluation.

Prereq: Basic knowledge of the following areas - basic computer science principles (logic, procedural and/or object oriented programming, data structures and algorithms), statistical methods, and medical terminology.

## 5760 Public Health Informatics U G 3

Introduction to the emerging and critical field of Public Health informatics. This course will highlight the history, current and future use of informatics in the public health settings, and give students an understanding of the role and broad application of informatics to promoting health and preventing disease.

Cross-listed in PubHlth.

## 5770 Health Analytics: Data to Discovery to Dissemination U G 3

Health Analytics is the science of analyzing health data for knowledge discovery and decision making. The sheer diversity of data types in health care settings results in what scholars call a DRIP environment: Data Rich-Information Poor. Data has become ubiquitous in healthcare settings from clinical decision making to operational/business planning; health decisions are now being made similarly. No programming experience is required, but students are expected to vigorously engage in their own learning and parts of courses will require that students use and adapt to tools demonstrated during class.

## 5780 Programming for Biomedical Informatics U G 3

This course will offer the foundational and working knowledge, skills and tools for programming for Biomedical informatics. Biomedical informatics is a field that leverages complex and heterogeneous data. Working with these data requires knowledge of multiple programming languages and software in order to take advantage of existing tools and eventually build new tools.

## 5793 Individual Studies in Biomedical Informatics U G 1 - 15

Enables graduate students to do research projects with faculty other than their adviser.

Prereq: Permission of instructor. Repeatable to a maximum of 60 or hrs or 4 completions. This course is graded S/U.

## 7040 Clinical Informatics G 3

This course provides training in the theories, methods, and application of clinical informatics (CI). CI is the field concerned with the use of data and information technology applied to the delivery of healthcare services. CI has a wide array of healthcare delivery application areas in the clinical domain, including: pharmacy, nursing, and patient care operational areas. There are no formal prerequisite course requirements, but a familiarity with United States healthcare delivery and medical terminology is strongly encouraged.

## 7600 Metabolomics, Principles and Practice G 3

Introduces students to the principles and practice of metabolomics. Metabolomics is the study of the totality of small molecules existing within a system. We will focus here on the application of metabolomics to plant, food, nutrition and health-related research, although concepts are applicable to other disciplines.

Prereq: Permission of instructor. Cross-listed in FdScTe, HCS, and HumnNtr.

## 7810 Design and Methodological Approaches in Biomedical Informatics G 3

An introduction to research design and methods in Biomedical Informatics. It is organized around elements of proposal writing, grant writing, and study design. We will be surveying aspects of research, including the formulation of research questions, testable hypotheses, the selection of appropriate research designs and methods, data collection and analysis.

## 58 Biomedical Informatics

<b>7830</b>	<b>Systems Biology</b>	<b>G</b>	<b>3</b>
Critical analysis of experiments in systems biology. Prereq: 730 or IBGP 705, or permission of instructor. Not open to students with credit for 830.			
<b>7891</b>	<b>Seminar in Biomedical Informatics</b>	<b>G</b>	<b>1</b>
Faculty, trainees, and outside speakers will give presentations on current biomedical informatics (BMI) and BMI-related research and theory. Alternate classes will consist of journal-club style discussions moderated by faculty. Prereq: Permission of instructor. Not open to students with credit for 881. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research in Biomedical Informatics</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 99 cr hrs or 20 completions. This course is graded S/U.			
<b>8030.01</b>	<b>Special Topics in BMI: Computational Biology and Bioinformatics</b>	<b>G</b>	<b>1 - 5</b>
This is an advanced discussion-based seminar exploring new methods, technologies, and research in computational biology and bioinformatics. Prereq: Grad standing in a graduate program of study and permission of the instructor. Repeatable to a maximum of 27 cr hrs or 9 completions.			
<b>8040.01</b>	<b>Special Topics in BMI: Clinical and Translational Informatics</b>	<b>G</b>	<b>1 - 5</b>
This is an advanced discussion-based seminar exploring new methods, technologies, and research in clinical and translational informatics. Prereq: Grad standing in a master, doctoral, or professional program; and permission of the instructor. Repeatable to a maximum of 27 cr hrs or 9 completions.			
<b>8050.01</b>	<b>Special Topics in BMI: Data Science</b>	<b>G</b>	<b>1 - 5</b>
This is an advanced discussion-based seminar exploring new methods, technologies, and research in biomedical data analytics and data science. Prereq: Graduate standing in a master, doctoral, or professional program; and permission of the instructor. Repeatable to a maximum of 27 cr hrs or 9 completions.			
<b>8130</b>	<b>Analysis and Applications of Genome-Scale Data</b>	<b>G</b>	<b>3</b>
This course introduces trainees to the fundamental algorithms needed to understand and analyze genome-scale expression data sets. The course will cover three major kinds of applications: Class Comparison, Class Discovery, and Class Prediction. We will also discuss methods for cross-validation and independent validation of predictive models. R software environment will be introduced and utilized.			
<b>8140</b>	<b>Measuring patient experience and preferences</b>	<b>G</b>	<b>3</b>
This course will cover theory and concepts of empirical tools to describe disease burden, health state utilities, patient reported outcomes, patient experience, and patient preferences, important policy contexts that govern the study of patient preferences (e.g. regulatory, pricing/reimbursement) and good research practice documents that guide empirical studies of the patient experience.			
<b>8150</b>	<b>Rigorous and Reproducible Design and Data Analysis</b>	<b>G</b>	<b>3</b>
Students will learn to: computationally analyze datasets using best practices in experimental design and analysis; use the R language to analyze datasets from transcriptome, genome, and clinical studies; use examples from experimental design literature that are rigorous and with built-in flaws; identify sources of bias and the impact these have on results/conclusions. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies in Biomedical Informatics</b>	<b>G</b>	<b>1 - 5</b>
Graduate study of a selected topic. Prereq: Grad standing and permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Biomedical Informatics</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 99 cr hrs or 20 completions. This course is graded S/U.			

### Biomedical Science

<b>1100</b>	<b>Biomedical Science Survey</b>	<b>U</b>	<b>1</b>
Introduction to the Biomedical Science major and College of Medicine. Emphasis on academic requirements and resources, career exploration, university policies, and student rights and responsibilities. Prereq: Enrollment in Biomedical Sciences major, or permission of instructor. Not open to students with credit for 100.			
<b>2891H</b>	<b>Mastering the Biomedical Literature I</b>	<b>U</b>	<b>2</b>
First course in a two semester series. Includes searching for, organizing, and analyzing the biomedical literature for applications in biomedical research and scholarly communication. Prereq: Honors standing, and Biomedical Science Major; or permission of instructor. Not open to students with credit for 220.01H or 220.02H.			
<b>2892H</b>	<b>Mastering the Biomedical Literature II</b>	<b>U</b>	<b>2</b>
Second course in a two semester series analyzing the biomedical literature. Designed in two week blocks to read an original paper in depth, and then to meet and discuss the work with the author. Prereq: Honors standing, 2891H, and a Biomedical Science Major; or permission of instructor.			

<b>2900H</b>	<b>Biomedical Science Laboratory Techniques</b>	<b>U</b>	<b>2</b>
Lab exercises to teach the theory and practice of basic techniques in cell and molecular biology: including tissue isolation, protein analysis, microscopy, DNA isolation, PCR, bacterial and mammalian cell transfections, and product analysis. Prereq: Honors standing, Biology 1113 & 1114 or equivalent, General Chemistry or equivalent, and a Biomedical Science Major; or permission of instructor. Not open to students with credit for 480H.			
<b>3193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 4</b>
An individualized program of study or research experience for BMS students. Prereq: A Biomedical Science Major, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
A specially designed program of study for BMS students. Prereq: A Biomedical Science Major, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>3891H</b>	<b>Biomedical Science Research Experience I</b>	<b>U</b>	<b>5</b>
An intensive research experience for BMS students. Students spend 20-25 hrs/wk in a research lab. Class meetings for three oral presentations and written reports of 1) the lab, 2) an experimental technique, and 3) a formal research proposal. Prereq: Honors standing, and a Biomedical Science Major; or permission of instructor. Not open to students with credit for 720.01, 720.02, or 720.03.			
<b>3892H</b>	<b>Biomedical Science Research Experience II</b>	<b>U</b>	<b>5</b>
An intensive research experience for BMS students. Students spend 20-25 hrs/wk in a research lab. Class meetings for three oral presentations and written reports of 1) Journal Club article, 2) a poster presentation, and 3) a final report. Prereq: Honors standing. Not open to students with credit for 720.01, 720.02, or 720.03.			
<b>3998</b>	<b>BMS Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research in Biomedical Science Laboratory. Prereq: A Biomedical Science Major, or permission of instructor. Repeatable to a maximum of 50 cr hrs or 5 completions. This course is graded S/U.			
<b>4200H</b>	<b>Concepts in Healthcare I: Humanistic and Social Issues in Medicine &amp; Biomedical Science</b>	<b>U</b>	<b>3</b>
Experiential initiation into the humanistic aspects of patient centered medicine for seniors in the Biomedical Science major. Communication process between patient and professional, between professionals, team work & leadership in medicine examined. Prereq: Honors standing, and a Biomedical Science Major, or permission of instructor. Not open to students with credit for 521, 522, or 523.			
<b>4210H</b>	<b>Concepts in Healthcare II: Introduction to Health Policy and Leadership in Healthcare</b>	<b>U</b>	<b>3</b>
Students will examine the political, social, and economic forces that have shaped health policy in the U.S. and the basic concepts of leadership in preparation for a career in a health care profession, biomedical research, or other careers. Prereq: Honors standing, and a Biomedical Science Major; or permission of instructor. Not open to students with credit for 521, 522, or 523.			
<b>4810H</b>	<b>Special Topics in Biomedical Science I: Immunology &amp; Infectious Disease</b>	<b>U</b>	<b>3</b>
Integrative research and application experience for seniors in the Biomedical Science major. Special topics in biomedical science combine basic science research and clinical applications to human disease processes. Prereq: Honors standing, and a Biomedical Science Major; or permission of instructor. Not open to students with credit for 581, 582, or 583.			
<b>4820H</b>	<b>Special Topics in Biomedical Science II: Genetics &amp; Neurological Disease</b>	<b>U</b>	<b>1½</b>
Integrative research and application experience for seniors in the Biomedical Science major. Special topics in biomedical science combine basic science research and clinical applications to human disease processes. Prereq: Honors standing, and a Biomedical Science Major; or permission of instructor. Not open to students with credit for 581, 582, or 583.			
<b>4830H</b>	<b>Special Topics in Biomedical Science III: Cancer Research; Bench to Bedside and Back</b>	<b>U</b>	<b>1½</b>
Integrative research and application experience for seniors in the Biomedical Science major. Special topics in biomedical science combine basic science research and clinical applications to human disease processes. Prereq: Honors standing, and a Biomedical Science Major; or permission of instructor. Not open to students with credit for 581, 582, or 583.			
<b>4998H</b>	<b>BMS Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research in a Biomedical Science Laboratory culminating in an honors thesis and defense. Prereq: Honors standing, and enrollment in Biomedical Sciences major, or permission of instructor. Repeatable to a maximum of 14 cr hrs or 14 completions. This course is graded S/U.			

### Biomedical Sciences Graduate Program

## Biomedical Sciences Graduate Program 59

<b>5194</b>	<b>Introduction to Agent-Based Modeling Using NetLogo</b>	<b>U G</b>	<b>3</b>
Teaches agent-based modeling techniques using NetLogo software. Students will develop agent-based models of complex systems drawn from Ecology, Biology, Sociology, Engineering, and Business. Computer literacy is recommended. A course in deductive logic or programming recommended. Students should download NetLogo and look over documentation before class begins.			
<b>6700</b>	<b>Patient-Centered Research</b>	<b>G</b>	<b>2</b>
Lectures and small group discussions will cover an introduction to humanistic aspects of medical research and human experimentation, including historical, socio-political, economic, and ethical aspects. Prereq: Enrollment in College of Medicine, and permission of instructor. Repeatable to a maximum of 8 or hrs. This course is progress graded (S/U).			
<b>7000</b>	<b>Concepts in Biomedical Science</b>	<b>G</b>	<b>6</b>
An exploration of selected topics in biomedical sciences, ranging from molecular and cellular to systems. An emphasis is placed on fundamental concepts and critical reading of the primary literature. The course combines traditional lectures within student presentations and weekly in-class discussions of published papers. Prereq: Enrollment in IBGP/Biomedical Sciences PhD program, or permission of instructor.			
<b>7030</b>	<b>Introduction to Data Science for Biological Sciences</b>	<b>G</b>	<b>2</b>
This course provides an introduction to data science practices in the area of Biological and Biomedical Research. Course covers how to develop scripts in R, Python & Bash and the fundamental of reproducible and transparent programming.			
<b>7040</b>	<b>Research Problem Solving in Biomedical Science</b>	<b>G</b>	<b>4</b>
Students in small groups will analyze current and classic research papers and learn how to identify the hypothesis, test the hypothesis, and whether the results support the conclusions. Prereq: 7000, or equiv, or permission of instructor. Not open to students with credit for 704.			
<b>7060</b>	<b>Faculty Research in Biomedical Science</b>	<b>G</b>	<b>1</b>
IBGP faculty members will present current research in their laboratories that could provide the basis for student laboratory rotations and dissertation research. Prereq: Enrollment in IBGP, or permission of program director. Not open to students with credit for 706. This course is graded S/U.			
<b>7070</b>	<b>Fundamentals of Grant Writing</b>	<b>G</b>	<b>4</b>
Introduce students to the basics principles of grant writing. Student must have a dissertation project about which they can write a proposal in order to enroll. Prereq: Not open to students with credit for 7070 and 7080.			
<b>7240</b>	<b>Molecular Pathogenesis</b>	<b>G</b>	<b>3</b>
In-depth presentation and discussion of the molecular and cellular mechanisms of pathogenesis, emphasizing current research in the field. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 724. Cross-listed in Micrbio 7724.			
<b>7400</b>	<b>Selected Topics in Microbial Pathogenesis</b>	<b>G</b>	<b>2</b>
Student led discussions of classic and current literature in microbial pathogenesis. Repeatable to a maximum of 4 or hrs.			
<b>7402</b>	<b>Microbial Pathogenesis Journal Club</b>	<b>G</b>	<b>2</b>
Weekly, one student will present a current paper from the literature that represents some aspect of Host-Pathogen interactions. The presentation will include background and figures from respected top-tier journals. Prior to class, all students turn in summary of manuscript and two questions. Class grades determined by presentation evaluation, written summary of manuscript and participation. Prereq or concur: 7724, or Micrbio 7020, or permission of instructor.			
<b>7880</b>	<b>Vaccine Immunology</b>	<b>G</b>	<b>1</b>
This course explores the theory and practice of developing viral vaccines by discussion of the relevant virology and immunology. It is a combination seminar and work in progress course in which trainees present relevant recent papers as well as their own work. Discussion is encouraged led by the presenter and by the 4-8 Center faculty members who attend each presentation. Prereq: 7000. This course is graded S/U.			
<b>7900</b>	<b>Cancer Immunology: Critical Journal Readings</b>	<b>G</b>	<b>1</b>
Faculty, students and postdoctoral fellows will give critical interpretations of research and journal readings on cancer immunology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 8 or hrs. This course is graded S/U.			
<b>7930</b>	<b>Individual Studies in Integrated Biomedical Science</b>	<b>G</b>	<b>1 - 15</b>
A research project will be assigned by a faculty member to meet the individual student's educational goals. Prereq: Enrollment in IBGP, or permission of instructor. Repeatable to a maximum of 60 or hrs or 10 completions. This course is graded S/U.			
<b>7950</b>	<b>Host-Pathogen Interactions: Research Seminar</b>	<b>G</b>	<b>1</b>
Faculty, students and outside speakers will give research presentations on microbial-host interactions. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 8 or hrs. This course is graded S/U.			

<b>7960</b>	<b>Research Seminars in Heart and Lung Disease</b>	<b>G</b>	<b>1</b>
Faculty and outside speakers will give basic and clinical science research seminars on mechanisms of heart and lung disease. Prereq: Enrollment in IBGP, or permission of instructor. Repeatable to a maximum of 8 or hrs. This course is graded S/U.			
<b>7972</b>	<b>Integrated Biomedical Science Senior Seminar</b>	<b>G</b>	<b>1</b>
Senior IBGP graduate students will present research work and be advised and critiqued by other senior students and a faculty advisor. Prereq: Enrollment in IBGP, and Grad standing. Repeatable to a maximum of 3 or hrs.			
<b>7975</b>	<b>Medical Scientist Student Seminar Series</b>	<b>G</b>	<b>1</b>
The Medical Scientist Student Seminar Series is a twice monthly forum for MSTP trainees to present research-in-progress, clinical cases, or journal club to their peers. Programmatic sessions (recruitment, new initiatives, etc.) and professional development (F30/F31, career path, vertical mentoring) sessions will be integrated into the schedule each semester. Prereq: Enrollment in the Medical Scientist Training Program. Repeatable to a maximum of 10 or hrs. This course is progress graded (S/U).			
<b>8050</b>	<b>Research Techniques and Resources</b>	<b>G</b>	<b>4</b>
Survey of research techniques used to solve problems in modern cell and molecular biology, immunology, biochemistry, microbiology, microscopy, laboratory safety, and related available resources. Prereq: Enrollment in IBGP, or permission of course director. Not open to students with credit for 805.01.			
<b>8520</b>	<b>Career Discovery in the Biomedical Sciences</b>	<b>G</b>	<b>1</b>
Seminar topics related to career opportunities available in the biomedical sciences, as well as topics on career development tools such as CV preparation, interview strategies, networking and prioritizing commitments. Prereq: Enrollment in BSGP, or permission of instructor.. Repeatable to a maximum of 6 or hrs. This course is graded S/U.			
<b>8800.01</b>	<b>Signature Program Translational Science Curriculum "Immunology and Inflammation"</b>	<b>G</b>	<b>2</b>
Translational Science to understand inflammatory diseases, viral diseases, cancer, and wound healing. Prereq: Enrollment in MD or DO degree program, or permission of instructor.			
<b>8800.02</b>	<b>Signature Program Translational Science Curriculum "Infection &amp; Host/Pathogen Science"</b>	<b>G</b>	<b>2</b>
Translational Science to understand inflammatory diseases, viral diseases, cancer, and wound healing. Prereq: Enrollment in MD or DO program, or permission of instructor. Cross-listed in IntMed.			
<b>8800.03</b>	<b>Signature Program Translational Science Curriculum "Regenerative Medicine &amp; Wound Healing"</b>	<b>G</b>	<b>2</b>
Translational Science to understand inflammatory diseases, viral diseases, cancer, and wound healing. Sum Sem. Prereq: Enrollment in MD or DO program, or permission of instructor.			
<b>8800.04</b>	<b>Signature Program Translational Science Curriculum "Cancer Biology &amp; Therapeutics"</b>	<b>G</b>	<b>2</b>
Translational Science to understand the cancer pathogenesis and the rational development of targeted therapies. Prereq: Enrollment in MD or DO degree program, or permission of instructor.			
<b>8800.05</b>	<b>Genomic Medicine</b>	<b>G</b>	<b>3</b>
Translational Science to understand current genomic medicine, pharmacogenomics literature, and design of genomics research projects, with emphasis on clinical applications. Prereq: Enrollment in MD or DO degree program, or permission of instructor.			
<b>8999</b>	<b>Research in Integrated Biomedical Science</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Prereq: Enrollment in IBGP, or permission of instructor. Repeatable to a maximum of 60 or hrs or 10 completions. This course is graded S/U.			

## Biophysics

<b>6000</b>	<b>Topics in Research Proposal Writing</b>	<b>G</b>	<b>1</b>
Course is designed to be a "writing lab" where students produce and critique research writing. Primarily, the focus will be proposal writing with NIH/NSF grant-writing strategies. Additional time will be devoted to developing manuscripts and poster presentations. Repeatable to a maximum of 2 or hrs.			
<b>6697</b>	<b>Study at a Foreign Institution</b>	<b>G</b>	<b>1 - 15</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of program director. Repeatable to a maximum of 45 or hrs or 45 completions. This course is progress graded (S/U).			
<b>6702</b>	<b>Advanced Experimental Methods in Biophysics</b>	<b>G</b>	<b>1 - 3</b>
Advanced Experimental Methods in Biophysics. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions.			

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<b>6789</b>	<b>Free Radicals in Biomedicine</b>	<b>G</b>	<b>2</b>
Background in free radical biology and medicine focused on biologically relevant radicals, their physiological and pathophysiological roles and underlying physico-chemical processes. Grad credit in Biochem, Phys Chem, or Biophys recommended. Sp Sem. Prereq: Permission of instructor (Ugrd only). Cross-listed in IntMed.			
<b>7600</b>	<b>First-Year Student Orientation</b>	<b>G</b>	<b>1</b>
Orientation for first-year students in Biophysics and partner graduate programs; lectures on topics important for successful graduate experience; training in presenting scientific work; training in research ethics. Prereq: Not open to students with credit for MCDBio 7600, MolGen 7600, OSBP 7600 (760), or Microbio 7600. This course is graded S/U. Cross-listed in MCDBio, MolGen, OSBP, and Microbio.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Any particular subject that is not part of the regular curriculum. Prereq: Permission of instructor and program director. Repeatable. This course is graded S/U.			
<b>8998</b>	<b>Research in Biophysics</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis and dissertation purposes. Prereq: Enrollment in a Ph.D. program. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Research in Biophysics</b>	<b>G</b>	<b>1 - 3</b>
Research credit for students who are post candidacy exam. Repeatable. This course is graded S/U.			

## Biotechnology

<b>1201T</b>	<b>Exploring Biochemical Sciences and Biotechnology</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>2218T</b>	<b>General and Applied Entomology</b>	<b>U</b>	<b>3</b>
Classification, identification, life cycles, external/internal structures, and functions of insects; common insect pests and their damage; methods of control and their applications. Prereq: Not open to students with credit for 218T or LabBioSc 218T. This course is available for EM credit.			
<b>2219T</b>	<b>Pesticides and their Use</b>	<b>U</b>	<b>3</b>
A study of the classification of pesticides and their mode of action, physiological effects, persistence in the environment, benefits, hazards, use, performance and regulation. Prereq: Not open to students with credit for 219T or LabBioSc 219T. This course is available for EM credit.			

## Bosnian/Croatian/Serbian

<b>1101</b>	<b>Elementary Bosnian/Croatian/Serbian I</b>	<b>U</b>	<b>4</b>
Introduction to Bosnian/Croatian/Serbian; development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of these languages through regular course enrollment or EM credit, or to students with 2 or more years of study in these languages in high school, except by permission of department. Prereq: Not open to students with credit for SrbCroat 101. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1102</b>	<b>Elementary Bosnian/Croatian/Serbian II</b>	<b>U</b>	<b>4</b>
Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of these languages through regular course enrollment or EM credit. Prereq: BCS 1101 (SrbCroat 101.01). Not open to students with credit for SrbCroat 102 or 103. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103</b>	<b>Intermediate Bosnian/Croatian/Serbian I</b>	<b>U</b>	<b>4</b>
Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of these languages through regular course enrollment or EM credit. Prereq: BCS 1102 (SrbCroat 102.01). Not open to students with credit for SrbCroat 104. This course is available for EM credit. GE for lang course.			
<b>2104</b>	<b>Intermediate Bosnian/Croatian/Serbian II</b>	<b>U</b>	<b>4</b>
Increasing functional ability in speaking, listening, reading, and writing practice, vocabulary-building; new grammar structures; start developing higher-level language skills in Bosnian/Croatian/Serbian. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: BCS 1103 (SrbCroat 104.01). Not open to students with credit for SrbCroat 407.01, or for 5 qtr cr hrs of 407.51.			
<b>3101</b>	<b>Advanced BCS I</b>	<b>U</b>	<b>3</b>
Further develop speaking, listening, reading, and writing skills and grammar competence. Prereq: 2104. Not open to students with credit for Slavic 5194 (Au13, Mihalicek).			
<b>3102</b>	<b>Advanced BCS II</b>	<b>U</b>	<b>3</b>
Advanced BCS; second semester. Prereq: 3101.			

## Business Admin

<b>1100</b>	<b>College of Business Survey</b>	<b>U</b>	<b>1</b>
Academic requirements; policies procedures and resources; student rights and responsibilities; academic areas of specialization; careers in accounting and business administration. Prereq: NFYS, or a transfer student in direct enrollment program in BUS; and permission of instructor or department. Not open to students with credit for any OSU survey course.			
<b>1100H</b>	<b>College of Business Survey</b>	<b>U</b>	<b>1</b>
Academic requirements; policies procedures and resources; student rights and responsibilities; academic areas of specialization; careers in accounting and business administration. Prereq: Honors standing, and NFYS standing in direct enrollment program in BUS and permission of instructor or department. Not open to students with credit for any OSU survey course.			
<b>1101.01</b>	<b>Business Administration Seminar: Scholars</b>	<b>U</b>	<b>1</b>
Seminar for first-year business scholars students to explore personal interests, interdisciplinary opportunities, campus and local community resources and activities related to business scholars program. Prereq: Admission to Business scholars program, and permission of instructor.			
<b>1101.02</b>	<b>Business Administration Seminar: Campus Change</b>	<b>U</b>	<b>1</b>
Develop successful strategies to transition from a regional campus to Fisher College and the BSBA major program on the Columbus campus. Emphasis placed on self-initiative, effective decision making and personal responsibility. Prereq: Permission of instructor.			
<b>1101.03</b>	<b>Business Administration Seminar: E&amp;I Scholars</b>	<b>U</b>	<b>1</b>
Seminar for first-year Entrepreneurship & Innovation scholars students to explore personal interests, interdisciplinary opportunities, campus and local community resources and activities related to E&I scholars program. Prereq: Admission to E&I Scholars program, or permission of instructor.			
<b>1101.04</b>	<b>Fisher First Seminar</b>	<b>U</b>	<b>1</b>
For students admitted into the Fisher College of Business and part of the Fisher F.I.R.S.T. Program. Designed to help students reflect on their self and leadership development, foster community building and enhance skills development that are necessary for academic success and career success of students in Business. Prereq: Admission to Fisher F.I.R.S.T. program.			
<b>1200</b>	<b>College of Business Survey II</b>	<b>U</b>	<b>1</b>
Students will develop a comprehensive academic, professional/career, and personal plan for success that incorporates: self-knowledge and individual interests, exploring a specialization, a 4-year graduation plan, short term and long term goals for gaining leadership and work experience, and identifying opportunities to enhance the college experience. Prereq: Fresh standing, or transfer student survey course.			
<b>2191.01</b>	<b>Professional Experience Field Study</b>	<b>U</b>	<b>1</b>
For students completing a full semester internship requiring credit; internship is supervised by the employer, three assignments related to the internship are evaluated by the Director, Undergraduate Internship Services. Prereq: Admission to College of Business major program and specialization, and permission of instructor. Not open to students with more than 3 credit hours of 2191 or 2191.02. Repeatable to a maximum of 4 or hrs. This course is graded S/U.			
<b>2191.02</b>	<b>Professional Experience Field Study</b>	<b>U</b>	<b>½</b>
For students completing a session long internship requiring credit; internship is supervised by the employer, three assignments related to the internship are evaluated by the Director, Undergraduate Internship Services. Prereq: Admission to College of Business major program and specialization, and permission of instructor. Not open to students with more than 3.5 credit hours of 2191 or 2191.01. Repeatable to a maximum of 4 or hrs. This course is graded S/U.			
<b>2292H</b>	<b>Business Skills &amp; Environment</b>	<b>U</b>	<b>3</b>
Introduction to the role of business in the lives of individuals, consumers, employees, and citizens. Focus on the concept of ethical leadership with emphasis on both oral and written communication skills for the business environment. Prereq: Honors standing, and admission to BSBA program. Not open to students with credit for BusMHR 2291, 2292 or BusAdm 499 or 499H.			
<b>2600</b>	<b>Undergraduate Speaker Series</b>	<b>U</b>	<b>1</b>
Alumni from the Fisher College of Business will discuss their specializations, and companies to assist students in making career decisions. Emphasis on networking and business communications. Prereq: Enrollment in College of Business. Not open to students with credit for 503. This course is graded S/U.			
<b>2601</b>	<b>Job Search Preparation and Transition to Work for Business Students</b>	<b>U</b>	<b>½ - 1</b>
Practical techniques and skill development in conducting a job/internship search, researching career information, evaluating career decisions and beginning a successful career. Prereq: Enrollment in the Fisher College of Business Major Program and Specialization. Repeatable to a maximum of 3 or hrs or 4 completions.			

<b>2798</b>	<b>Study Tour: International</b>	<b>U</b>	<b>½ - 3</b>
Designed to provide an orientation to students who will embark on an international experience and once there, will enable students across countries to learn from each other. Prereq: Permission of instructor. Not open to students with credit for 498.02. Repeatable to a maximum of 9 credit hours or 3 completions.			
<b>3520</b>	<b>Entrepreneurship and Innovation: Fundamentals of New Product Development</b>	<b>U</b>	<b>3</b>
Provide an understanding of the entire product development process, from the first stages of problem definition to the finished product. Prereq: BusMHR 3510.01.			
<b>3531</b>	<b>Entrepreneurship and Innovation: General, Startup-Based Entrepreneurship</b>	<b>U</b>	<b>3</b>
Transformation of knowledge captured through creative, person-centered design into conceptual, viable, commercial concepts in the area of product/service based general entrepreneurship and entrepreneurial start-ups. Examination of a variety of business models appropriate for commercializing product/service based conceptualizations. Prereq: 3510, and Design 2700 and MechEng or ISE 5682.			
<b>3532</b>	<b>Entrepreneurship and Innovation: Corporate Entrepreneurship</b>	<b>U</b>	<b>3</b>
Develop skills and understanding of theories and their application to develop new ideas and viable new businesses within an established firm. Address the development of an internal culture of innovation, processes for reviewing ideas and developing concepts, strategic analysis, positioning for competitive advantage, forms of corporate ventures, and the qualities of corporate entrepreneurs. Prereq: 3510, and Design 2700 and MechEng or ISE 5682.			
<b>3533</b>	<b>Entrepreneurship and Innovation: Technology Entrepreneurship</b>	<b>U</b>	<b>3</b>
Examine the innovative transformation of knowledge captured in scientific discoveries into conceptual, viable, commercial products and services. Prereq: 3510, and Design 2700 and MechEng or ISE 5682.			
<b>3630.01</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Previous enrollment in 3630.01, or admission to Business Industry Cluster Program, or permission of instructor. Not open to students with credit for 505.01.			
<b>3630.01E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster Program.			
<b>3630.02</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business majors to learn strategy and implementation details from current industry professionals. Prereq: Previous enrollment in 3630.02, or enrollment in Business Industry Cluster Program, or permission of instructor. Not open to students with credit for 505.02.			
<b>3630.02E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster Program.			
<b>3630.03</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Previous enrollment in 3630.03, or admission to Business Industry Cluster Program, or permission of instructor. Not open to students with credit for 505.03.			
<b>3630.03E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster Program.			
<b>3630.04</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Previous enrollment in 3630.04, or admission to Business Industry Cluster Program, or permission of instructor. Not open to students with credit for 505.04.			
<b>3630.04E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster Program.			

<b>3630.05</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Previous enrollment in 3630.05, or admission to Business Industry Cluster Program, or permission of instructor. Not open to students with credit for 505.05.			
<b>3630.05E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to the BSBA Honors Contract Industry Cluster Program.			
<b>3630.06</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to Business Industry Cluster Program, or permission of instructor.			
<b>3630.06E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster program.			
<b>3630.07</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to Business Industry Cluster Program, or permission of instructor.			
<b>3630.07E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster program.			
<b>3630.08</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to Business Industry Cluster Program.			
<b>3630.08E</b>	<b>Business Industry Cluster</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to BSBA Honors Contract Industry Cluster program.			
<b>3630.09</b>	<b>Business Industry Immersion</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to Business Industry Immersion Program, or permission of instructor.			
<b>3630.10</b>	<b>Business Industry Immersion</b>	<b>U</b>	<b>3</b>
Exploration of current interdisciplinary best business practices in industry. Students will work across business specializations to learn strategy and implementation details from current industry professionals. Prereq: Admission to Business Industry Immersion Program, or permission of instructor.			
<b>3632.01</b>	<b>Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: Enrollment in Business Industry Cluster Program, or permission of instructor. Prereq or concur: 3630.01. Not open to students with credit for 506.01.			
<b>3632.01E</b>	<b>Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.01E, and admission to BSBA Honors Contract Industry Cluster program.			
<b>3632.02</b>	<b>Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: Enrollment in Business Industry Cluster Program, or permission of instructor. Prereq or concur: 3630.02. Not open to students with credit for 506.02.			
<b>3632.02E</b>	<b>Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.02E, and admission to BSBA Honors Contract Industry Cluster program.			

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<b>3632.03 Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: Enrollment in Business Industry Cluster Program, or permission of instructor. Prereq or concur: 3630.03. Not open to students with credit for 506.03.		
<b>3632.03E Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.03E, and admission to BSBA Honors Contract Industry Cluster Program.		
<b>3632.04 Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: Enrollment in Business Industry Cluster Program, or permission of instructor. Prereq or concur: 3630.04. Not open to students with credit for 506.04.		
<b>3632.04E Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.04E, and admission to BSBA Honors Contract Industry Cluster Program.		
<b>3632.05 Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: Enrollment in Business Industry Cluster Program, or permission of instructor. Prereq or concur: 3630.05. Not open to students with credit for 506.05.		
<b>3632.05E Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.05E, and admission to BSBA Honors Contract Industry Cluster program.		
<b>3632.06 Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq 3630.06, and enrollment in Business Industry Cluster Program; or permission of instructor.		
<b>3632.06E Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.06E, and admission to the BSBA Honors Contract Industry Clusters program.		
<b>3632.07 Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq 3630.07, and enrollment in Business Industry Cluster Program; or permission of instructor.		
<b>3632.07E Business Industry Cluster Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.07E, and admission to BSBA Honors Contract Industry Cluster Program.		
<b>3632.08 Business Industry Immersion Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.08, or permission of instructor.		
<b>3632.09 Business Industry Immersion Project Experience</b>	<b>U</b>	<b>3</b>
Hands-on experience in the execution of industry business practices to fill a need articulated by an operating public or private organization. Prereq: 3630.09, or permission of instructor.		
<b>3640.01 Introduction to Sustainability in Business I: Principles and Concepts</b>	<b>U</b>	<b>3</b>
An introduction to the topic of sustainability in business. Prereq: Must be in Business Industry Cluster Program.		
<b>3640.01E Introduction to Sustainability in Business I: Principles and Concepts</b>	<b>U</b>	<b>3</b>
An introduction to the topic of sustainability in business. Prereq: Admission to BSBA Honors Contract Industry Cluster Program.		
<b>3640.02 Introduction to Sustainability in Business I: Principles and Concepts</b>	<b>U</b>	<b>3</b>
An introduction to the topic of sustainability in business. Prereq: ENR 2500 or AEDEcon 2500. Not open to students with credit for BusMHR 504.01, 504.02 or 694.11 or BusAdm 3640.01.		
<b>3642.01 Introduction to Sustainability in Business II: Applications, Solutions and Project Experience</b>	<b>U</b>	<b>3</b>
Field projects on sustainable business issues. Prereq: 3640.01, or permission of instructor.		

<b>3642.01E Introduction to Sustainability in Business II: Applications, Solutions and Project Experience</b>	<b>U</b>	<b>3</b>
An introduction to the topic of sustainability in business with a concentration on the applications and solutions. Prereq: 3640.01E, and admission to BSBA Honors Contract Industry Cluster Program. Not open to students with credit for 3640.02 or 3642.02.		
<b>3642.02 Introduction to Sustainability in Business II: Applications, Solutions and Project Experience</b>	<b>U</b>	<b>3</b>
Field projects on sustainable business issues. Prereq: 3640.02, or permission of instructor. Not open to students with credit for BusMHR 504.03 or 694.13.		
<b>3760 Exploring Culture in International Environments</b>	<b>U</b>	<b>1</b>
Through individual reflections, activities, and discussions, students participating in Fisher's International Student Exchange Program will be challenged to view knowledge and experiences from multiple perspectives. Prereq: Accepted into a Fisher International Exchange Program. Repeatable to a maximum of 2 cr hrs. This course is progress graded.		
<b>3890H Honors Seminar</b>	<b>U</b>	<b>1 - 3</b>
Seminar on current business topics for students enrolled in the Business Administration Honors Programs. Topics may vary. Prereq: Admission to a Business Administration Honors Program. Repeatable to a maximum of 6 cr hrs of 4 completions.		
<b>4189 Advanced Field Study: Doing Business in a Global Region</b>	<b>U</b>	<b>1</b>
Required pre-departure component of Fisher College of Business Global Internship Program for Undergraduates. Prereq: Admission to Fisher College of Business Global Internship Program, and permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.		
<b>4191 Professional Experience in Business</b>	<b>U</b>	<b>0</b>
Students complete a co-op or internship assignment in private industry or for a government agency; assignment is supervised by the employer and monitored and evaluated by the course coordinator. Prereq: Permission of the Course Coordinator. Repeatable to a maximum of 4 completions. This course is graded S/U.		
<b>4510 Entrepreneurship and Innovation: Practicum</b>	<b>U</b>	<b>3</b>
Last required course in the Entrepreneurship and Innovation Minor. Application of tools and resources to real-world projects. Prereq: 3510 and 3531, 3532, 3533 or BusMHR 5530, and Design 2700, and MechEng or ISE 5682.		
<b>4798 Study Tour: International</b>	<b>U</b>	<b>1 - 10</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Repeatable for different titled study tours only. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 3 completions.		
<b>4890H Honors Seminar</b>	<b>U</b>	<b>1 - 3</b>
Seminar on current business topics for students enrolled in the Business Administration Honors Programs. Topics may vary. Prereq: 3890H. Repeatable to a maximum of 6 cr hrs or 2 completions.		
<b>4998 Undergraduate Research in Business</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate Research in Business for non-honors students. Prereq: BusMHR 2291 (499), and Jr standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.		
<b>5797 Study at a Foreign Institution</b>	<b>U G</b>	<b>½ - 18</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of Undergraduate BSBA Program Director of Student Services. Repeatable to a maximum of 36 cr hrs or 10 completions.		
<b>7191 Professional Experience in Business</b>	<b>G</b>	<b>0</b>
International students complete a co-op or internship assignment in private industry or for a government agency; assignment is supervised by the employer and monitored and evaluated by the course coordinator. Prereq: Permission of the Course Coordinator. Repeatable to a maximum of 4 completions. This course is graded S/U.		

### Business Admin: Finance

<b>1200 Personal Finance</b>	<b>U</b>	<b>3</b>
Introduction to the field of personal financial management and planning, focusing on the tools individuals and families employ to manage their financial affairs. Prereq: Not open to students with credit for 220, or enrolled in Accounting or Finance majors.		
<b>1250 FINIGS</b>	<b>U</b>	<b>2</b>
There is a broad range of opportunities, in a broad range of industries available to students with a Finance degree. This course is designed to explore these opportunities, in an in-depth manner. The goal of this course is to give the student a 'real world' perspective. Prereq: Soph standing, and Finance specialization. This course is graded S/U.		



<b>3120</b>	<b>Foundations of Finance</b>	<b>U</b>	<b>3</b>
Develops skills related to Time Value of Money, Risk and Return with applications in business and personal finance. Prereq: AcctMIS 2000, Math 1116 or above, Econ 2001.01, and CSE 1110 or equiv. Not open to students with credit for 3220. Not open to students enrolled in the BSBA program.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 6</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor. Not open to students with credit for 494.			
<b>3220</b>	<b>Business Finance</b>	<b>U</b>	<b>3</b>
Introductory finance class which allows students develop the skills to understand how financial managers make value-maximizing decisions for their firms. Prereq: Econ 2001.01 (200), and 2002.01 (201), and AcctMIS 2200 (211). Prereq or concur: AcctMIS 2300. Not open to students with credit for 620, or to students enrolled in UUSS, UExp or PreBSBA-PR.			
<b>3222</b>	<b>Foundations of Investments</b>	<b>U</b>	<b>3</b>
Basic principles and methods of investment for non-Business majors. Prereq: 3120 (420) and AcctMIS 2000. Not open to students with credit for 4221 (722) or 522. Not open to students enrolled in the BSBA program.			
<b>3250</b>	<b>Foundations of International Finance</b>	<b>U</b>	<b>3</b>
Management of financial risk inherent with international business; problems of implementing corporate finance principles; International Capital Markets, for non-Business majors. Prereq: 2200, 3220 (620), or 420. Not open to students with credit for 4250 or 725.			
<b>3300</b>	<b>Principles of Insurance</b>	<b>U</b>	<b>3</b>
Basic principles and main characteristics of the Insurance Industry and the fundamentals of risk identification, insurance contracts, and annuities. Prereq: Econ 2001.01, 2002.01, and BusMHR 2292.			
<b>3400</b>	<b>Introduction to Real Estate</b>	<b>U</b>	<b>3</b>
Examine the economics of property rights, the fundamental theories in urban economics, and selected applications. Prereq: Econ 2001.01 (200) or 2002.01 (201), and BusMhr 2292 (BusAdm 499.01). Not open to students with credit for 670.			
<b>3500</b>	<b>Legal Environment of Business</b>	<b>U</b>	<b>1½</b>
An introduction to American legal institutions, sources of law, and an analysis of basic concepts of public and private law related to business decisions. Prereq: Soph standing. Not open to students with credit for 510, or to students enrolled in UUSS, UExp or PreBSBA-PR.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 4</b>
Individual study projects in selected areas of finance. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 3 completions. This course is graded S/U.			
<b>4194.21</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor. Not open to students with credit for 694.21.			
<b>4194.22</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor. Not open to students with credit for 694.22.			
<b>4194.23</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor. Not open to students with credit for 694.23.			
<b>4194.24</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor. Not open to students with credit for 694.24.			
<b>4194.25</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor. Not open to students with credit for 694.25.			
<b>4200</b>	<b>Applications in Finance</b>	<b>U</b>	<b>3</b>
Applications in Finance with a discussion of Investment alternatives such as Money Market instruments, Stocks and Bonds and Corporate Finance issues such as Corporate Governance, Cost of Capital and Capital Budgeting. Prereq: 3220 (620), BusMgt 2320 (330), and 2321 (331). Not open to students with credit for 4210, 4211, 4212 (721), 4220, 4221, or 4222 (722).			
<b>4201</b>	<b>Financial Data</b>	<b>U</b>	<b>1½</b>
How to use relevant accounting information for various applications in finance such as estimating stock and bond prices and free cash flows. Prereq: 3220 (620), AcctMIS 2200 (211), AcctMIS 2300 (212), BusMgt 2320 (330), and 2321 (331); and BusMHR 2291 or 2292 (BusAdm 499.01).			
<b>4202H</b>	<b>Honors Financial Data</b>	<b>U</b>	<b>3</b>
This hands-on course covers the application of financial software tools and financial modeling. You will be exposed to real world applications used in corporate finance, investment banking, private equity, and asset management. Prereq: A CPHR of 3.5 or above, and admission to the Finance Honors Program.			

<b>4211</b>	<b>Corporate Finance</b>	<b>U</b>	<b>3</b>
Analysis of advanced capital budgeting problems through understanding the theories and applications of capital structure, leasing and real options. Theories and applications in corporate control, corporate governance and mergers and acquisitions. Prereq: 3220 (620), AcctMIS 2200, 2300, BusMgt 2320 (330), 2321 (331), and BusMHR 2291 or 2292 (BusAdm 499.01) Not open to students with credit for 721, 4210 or 4212.			
<b>4211H</b>	<b>Honors Corporate Finance</b>	<b>U</b>	<b>3</b>
The course introduces students to key concepts in financial management, including capital budgeting, the valuation of projects and companies, methods for determining the cost of capital, capital structure and payout policies, securities issuance, mergers and acquisitions, and corporate governance. Prereq: Admission to the Finance Honors Program, and a CPHR of 3.5 or above.			
<b>4213</b>	<b>Corporate Restructuring and Bankruptcy</b>	<b>U</b>	<b>1½</b>
Corporate finance theories as they relate to spinoffs, restructuring, and bankruptcy. Prereq: 4211, 4221, 4219, and BusMHR 2292. Not open to students with credit for 721.			
<b>4214</b>	<b>Corporate Finance IV</b>	<b>U</b>	<b>1½</b>
A capstone course that allows students to apply their skills and knowledge developed in earlier courses to action-based corporate finance case studies. Prereq or concur: 4213 and BusMHR 2291 (BusAdm 499.01). Not open to students with credit for 721.			
<b>4215</b>	<b>Entrepreneurial Finance</b>	<b>U</b>	<b>1½</b>
The roles of business plans, Angel Investors, and venture capital in private firms. Prereq: 4211 and 4221. Not open to students with credit for 590.			
<b>4216</b>	<b>Private Equity</b>	<b>U</b>	<b>1½</b>
Private equity funds are responsible for a large percentage of merger activity both inside and outside the U.S. The venture capital portion of the private equity industry has provided financing for most of the prominent new companies that have gone public in recent years. Prereq: 4211, 4221, and 4229.			
<b>4217</b>	<b>Private Financing (i.e. VC &amp; PE)</b>	<b>U</b>	<b>3</b>
This course provides a comprehensive look into the inner workings of Venture Capital along with the various skill sets required of first year analysts. The class will include case studies and class discussions augmented by lectures from industry experts. Prereq: 4211 and 4221.			
<b>4218</b>	<b>Fixed Income Securities</b>	<b>U</b>	<b>1½</b>
An introduction to the mathematics and evaluation of US Dollar denominated fixed income instruments. Students will learn the underlying terms and conditions used in the fixed income markets and apply Excel based mathematical models to evaluate the pricing, yield, risk, and return attributes in the market. Prereq: 4201, 4211, 4221, 4250, and CPHR 3.5 or above.			
<b>4219</b>	<b>Advanced Corporate Finance</b>	<b>U</b>	<b>3</b>
This course is a capstone undergraduate elective in the area of Corporate Finance. The course helps students bridge the gap between the theory of finance, covered in other courses, and the reality of decision-making as a financial manager through the use of real-world case studies. Students learn to analyze real-world problems and provide recommendations to a best course of action. Prereq: 4211, 4221, and BusMHR 2291 or 2292. Not open to students with credit for or currently enrolled in 4229 or 4239.			
<b>4221</b>	<b>Investments</b>	<b>U</b>	<b>3</b>
Skills for valuation and theories and applications of CAPM, APT, and efficient markets; investment options, forwards and futures, interest rate parity, and relevant market regulation. Prereq: 3220, BusMgt 2320, 2321, and BusMHR 2292. Not open to students with credit for 722, 4220 or 4222.			
<b>4221H</b>	<b>Honors Investments</b>	<b>U</b>	<b>3</b>
Designed to teach the principles of financial decision making and the investment process. The course will cover current market moving events, multiple asset classes, asset allocation, diversification, security valuation, key player types, efficient market hypothesis, adaptive market hypothesis, behavioral finance, pricing models, active investment management, investment funds, and fin. reg. Prereq: Admission to the Finance Honors Program, and a CPHR of 3.5 or above.			
<b>4223</b>	<b>Fixed Income</b>	<b>U</b>	<b>1½</b>
The basics of fixed-income securities, bond valuation skill development, and the measurement and management of credit and interest-rate risk. Prereq: 4211 and 4221. Not open to students with credit for 731.			
<b>4224</b>	<b>Behavioral Finance</b>	<b>U</b>	<b>1½</b>
Theories and implications of behavioral finance, CAPM Anomalies, and advanced Investment strategies. Prereq: 4211 (721), 4221 (722) and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 722.			

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<b>4225</b>	<b>Investment Strategies and Philosophies</b>	<b>U</b>	<b>3</b>
This course is designed to teach different investment strategies, reveal the beliefs that underlie each one, provide evidence on whether the strategies actually produce results, and what an investor needs to understand in order to implement a philosophy. The strategies covered include value investing, growth investing, technical analysis, market timing, arbitrage, fixed income. Prereq: 4211 and 4221.			
<b>4227</b>	<b>Trading &amp; Markets</b>	<b>U</b>	<b>1½</b>
Action-based course on market design and trading cost analysis, including interactive trading simulation. Prereq: 4211, 4221 and BUSMHR 2292. Not open to students with credit for 730.			
<b>4228</b>	<b>Stock Market: Student Investment Management</b>	<b>U</b>	<b>3</b>
Action-based course applying valuation techniques and investment strategies to portfolio management and valuation. Prereq: 4211, 4221, BUSMHR 2292 and GPA 3.2 or above. Not open to students with credit for 724.			
<b>4229</b>	<b>Options and Futures</b>	<b>U</b>	<b>3</b>
This course explores the valuation of forwards, options, forward-based, and option-based financial instruments. While a student may have studied options and/or forwards in other courses, this course examines in detail the analytical methods used to price these securities, and the analytical analysis of arbitrage, hedging, and speculation using these securities. Prereq: 4211, 4221, and BusMHR 2291 or 2292. Not open to students with credit for or currently enrolled in 4219 or 4239.			
<b>4234</b>	<b>FinTech</b>	<b>U</b>	<b>1½ - 3</b>
'FinTech' refers to financial sector innovations involving technology-enabled business models that can facilitate disintermediation, revolutionize how existing firms create and deliver products and services, address privacy, regulatory and law-enforcement challenges, provide new gateways for entrepreneurship, and seed opportunities for inclusive growth. Prereq: 4211 and 4221.			
<b>4235</b>	<b>Applied Fundamental Investing</b>	<b>U</b>	<b>1½</b>
Theories and applications in asset management including the roles of investment strategies. Prereq: 4211, 4221, and CPHR 3.5 or above. Not open to students with credit for 728.			
<b>4239</b>	<b>Risk Management</b>	<b>U</b>	<b>3</b>
Extends the skills developed in Corporate Finance and Investments classes to the role of risk management within the firm. Increasingly, managers are required to understand the many risks facing their organizations, undertaking those risks which represent value-enhancing opportunities, while mitigating unwanted risks. Prereq: 4211 and 4221, and BusMHR 2291 or 2292. Not open to students with credit for or currently enrolled in 4219 or 4229.			
<b>4250</b>	<b>Global Finance</b>	<b>U</b>	<b>1½</b>
Implications for financial managers of global economic policy. Prereq: 3220 (620), AcctMIS 2200 (211), 2300 (212), BusMgt 2320 (330), 2321 (331), and BusMHR 2291 or 2292 (BusAdm 499.01). Not open to students with credit for Econ 520.			
<b>4250H</b>	<b>Honors Global Finance</b>	<b>U</b>	<b>1½ - 3</b>
In this class, we are going to look at the interconnections that link international financial markets and their implications for firms. We will develop a simple model that will help you understand the relationship between the financial markets and macroeconomic policies and the business environment in which firms operate. Prereq: A CPHR of 3.5 or above, and admission to the Finance Honors Program.			
<b>4251</b>	<b>Booms and Busts</b>	<b>U</b>	<b>3</b>
In this course we examine various financial booms, busts and how the field of finance evolved along the way. The purpose of the course is to understand the causes of past financial crises and booms as well as develop a deeper understanding of how the field of finance has progressed. Prereq: 4211, 4221, and 4201. Prereq or concur: 4250.			
<b>4255</b>	<b>International Finance</b>	<b>U</b>	<b>3</b>
The goal is to provide a framework for making financial decisions in an international context. The course is divided into three sections: 1) the international financial environment, 2) international investment analysis, and 3) international corporate finance. Students will be exposed to a broad range of topics, including some of the latest developments in global financial markets. Prereq: 4250. Prereq or concur: 4211 and 4221.			
<b>4265</b>	<b>Financial Institutions</b>	<b>U</b>	<b>3</b>
Financial Institutions play an extremely important role in the functioning of the global economy and in the operation of our firms. When financial institutions fail to act properly the results can be catastrophic, both for financial markets and greater society as a whole. Prereq or concur: 4211 and 4221. Not open to students with credit for 726.			
<b>4310</b>	<b>Commercial Property and Casualty Insurance</b>	<b>U</b>	<b>3</b>
Fundamentals of commercial property and liability insurance, including commercial property and liability contracts, and the regulation and financial analysis of property and liability insurers. Prereq: 3300 (640), BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 749.			

<b>4311</b>	<b>Personal Insurance</b>	<b>U</b>	<b>3</b>
Topics on the basics of life insurance, health insurance, disability and long term care insurance, homeowners and renters insurance, auto insurance. Prereq: 3300, BusMgt 2320, and BusMHR 2292.			
<b>4312</b>	<b>Employee Benefits Plans</b>	<b>U</b>	<b>3</b>
Fundamentals of insurance topics related to the human resource function such as health and retirement benefits, and COBRA. Prereq: BusMgt 2320 (330), 3300 (640), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 741.			
<b>4313</b>	<b>Captive Insurance Company: Development, Structure and Operations</b>	<b>U</b>	<b>3</b>
This course provides an introduction to the formation, characteristics, and functions of Captive Insurance Companies. Captive is a subsidiary insurance company that covers the loss exposures of its parent. In the 50 years since their introduction, captives have evolved to cover multiple owners or members. Prereq: 3300, BusMgt 2320, and BusMHR 2292.			
<b>4315</b>	<b>Insurance Operations</b>	<b>U</b>	<b>3</b>
This course examines the major operations of property and casualty insurers, and the issues facing managers of such operations. Students will review the core insurance functions of marketing, underwriting, and claims, as well as key staff roles, including actuarial, loss control, reinsurance and investment management. Prereq: 3300, BusMgt 2320, and BusMHR 2292.			
<b>4410</b>	<b>Real Estate Finance</b>	<b>U</b>	<b>3</b>
Basics of the mortgage markets and related finance investments and models of real estate valuation. Prereq: 3400 (670), or in Finance-BS plan. Not open to students with credit for 772.			
<b>4411</b>	<b>Property Management</b>	<b>U</b>	<b>3</b>
Basic topics related to property management such as acquisition, construction, and supporting business functions. Prereq: 3220 (620), 3400 (670), 3500 (510), BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 776.			
<b>4412</b>	<b>Real Estate Law</b>	<b>U</b>	<b>3</b>
Basic legal aspects of property contracts, transactions, and environmental law. Prereq: 3220 (620), 3400 (670), 3500 (510), BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 775.			
<b>4413</b>	<b>Planning and Development</b>	<b>U</b>	<b>3</b>
In this action-based class, students engage in site-based development case studies. Prereq: 3220 (620), 3400 (670), 3500 (510), BusMgt 2320 (330), 2321 (331), and BusMHR 2291 (BusAdm 499.01).			
<b>4415</b>	<b>Real Estate Asset Management</b>	<b>U</b>	<b>1½</b>
Real Estate Asset Management, is designed to give students a solid grasp of the skills required in analyzing a commercial real estate investment, and formulating and implementing the strategy for optimizing the investment returns. Prereq: 3220, 3400, 3500, BusMgt 2320, 2321, and BusMHR 2292.			
<b>4416</b>	<b>Real Estate Equity Investment</b>	<b>U</b>	<b>1½</b>
Real Estate Equity Investment, is designed to give students a solid understanding of equity investment in commercial real estate through a vehicle called a Real Estate Investment Trust (REIT). Prereq: 3220, 3400, 3500, BusMgt 2320, 2321, and BusMHR 2292.			
<b>4510</b>	<b>Legal Business Issues</b>	<b>U</b>	<b>1½</b>
Fundamentals of contracts and other legal aspects of business. Prereq or concur: 3500 and BusMHR 2291 (BusAdm 499.01). Not open to students with credit for 510.			
<b>4630H</b>	<b>Finance Honors Seminar-Capstone</b>	<b>U</b>	<b>3</b>
This course is a current event and capstone project with leadership service experience. The Capstone project will introduce you to the world of non-profit organizations. The non-profit sector serves a vital role in our society and covers range of institutions and organizations. Prereq: Admission to the Finance Honors Program.			
<b>4998</b>	<b>Undergraduate Research in Finance</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research in finance for non-honors students. Prereq: BusAdm 2291 (499), and Jr standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 3</b>
Special topics research in finance, business law, insurance and risk, and/or real estate; research evaluated through papers, thesis, and/or special examination. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>5402</b>	<b>Real Estate Valuation</b>	<b>U G</b>	<b>3</b>
This real estate valuation and financial modeling course will cover existing income producing property as well as ground up construction. Topics include market analysis, comparable valuation, income valuation, cost valuation, real estate finance, expense reimbursements, budget development, and pro-forma modeling. Prereq: 3400, and enrollment in RealEst major or minor; or 4211, 4221, and enrollment in Finance major; or 7240; or permission of instructor.			

<b>6211</b>	<b>Finance I</b>	<b>G</b>	<b>1½</b>
Covers topics of time value of money, concepts of risk and return, and investment criteria. Prereq: Enrollment in MAcc program. Not open to students with credit for 811.			
<b>6212</b>	<b>Finance II</b>	<b>G</b>	<b>1½</b>
Covers capital budgeting, market efficiency, derivatives, interest rate parity. Prereq: Enrollment in MAcc program. Not open to students with credit for 811.			
<b>6220</b>	<b>Financial Analysis and Valuation</b>	<b>G</b>	<b>3</b>
Fundamental techniques for financial analysis such as time value of money, risk and return, capital budgeting and investment criteria, financial accounting, and an introduction to financial derivatives. Prereq: Enrollment in SMB-Finance program. Not open to students with credit for 860.			
<b>6221</b>	<b>Economics for Financial Analysts</b>	<b>G</b>	<b>1½</b>
Principles of how individuals and firms make financial decisions, how financial markets work, and how financial managers make decisions under different forms of industry structure. Prereq: Enrollment in SMB-Finance program. Not open to students with credit for 861.			
<b>6225</b>	<b>Core Capstone Projects - SMF</b>	<b>G</b>	<b>1½</b>
This is a capstone, action-based course for students in the Specialized Masters - Finance (SMF) program offered in the first semester of the program. The course aims at providing SMF students with a structured environment to practice analytical and soft skills acquired throughout the program's core courses. Prereq: Enrollment in SMB-Finance program.			
<b>6226</b>	<b>Finance Consulting Practicum</b>	<b>G</b>	<b>1½</b>
Action-based course providing students in the Specialized Masters Finance the opportunity to practice analytical and soft skills through working with professionals on finance projects. Prereq: Enrollment in SMB-Finance program. Not open to students with credit for 865.			
<b>6227</b>	<b>Professional Development for SMF students</b>	<b>G</b>	<b>1½</b>
This course is designed to supplement and enhance the SMF experience. The SMF program develops technical skills in finance, but class participation and team assignments are also essential to success. Class participation is often a significant part of course grades and team are assigned to prepare case briefs. Prereq: Enrollment in SMB-Finance program. This course is graded S/U.			
<b>6230</b>	<b>Accounting &amp; Finance for Analytics</b>	<b>G</b>	<b>3</b>
Students will understand the fundamentals of accounting (managerial and financial) and finance. The course will cover defining financial data, transforming data into information and leveraging financial information to make financial decisions. Students will have hands-on experience with various types of real-world financial data and build a detailed discounted cash flow model. Prereq: Enrollment in SMB-Analytics program.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>½ - 9</b>
Individual study projects in related areas of finance. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 3 completions. This course is graded S/U.			
<b>7194.21</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor.			
<b>7194.22</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Group study projects in selected areas of finance. Prereq: Permission of instructor.			
<b>7200</b>	<b>Financial Software Applications</b>	<b>G</b>	<b>1½</b>
This hands-on course covers the application of financial software tools and financial modeling. Exposure to real world applications used in corporate finance, investment banking, private equity, and asset management. Apply models relating to project analysis, capital budgeting, financial statement analysis, equity intrinsic values, capital structure, portfolio mgmt, leveraged buyouts, and M&A. Prereq: MBA 6223, or enrollment in SMB-Finance program.			
<b>7210</b>	<b>Corporate Financing</b>	<b>G</b>	<b>1½</b>
Advanced valuation skills and theories and applications in capital structure and security issuance. Prereq or concur: MBA 6223, or enrollment in SMB-Finance program.			
<b>7211</b>	<b>Financial Budgeting and Management in an MNC</b>	<b>G</b>	<b>1½</b>
The course focuses on key financial forecasting and budgeting processes in a multi-national company. The audience is Finance professionals, and other disciplines who aspire to be in commercial facing roles. Prereq: MBA 6223. Prereq or concur: BusFin 7210, or enrollment in SMB-Finance program.			
<b>7212</b>	<b>Mergers and Acquisitions</b>	<b>G</b>	<b>1½</b>
Advanced theories of and applications in the areas of corporate control and governance and mergers and acquisitions. Prereq: MBA 6223, and BusFin 7210, concur: 7220 or 7230; or enrollment in SMB-Finance program.			

<b>7213</b>	<b>Corporate Restructuring and Bankruptcy</b>	<b>G</b>	<b>1½</b>
Advanced corporate finance theories and applications in the areas of spinoffs, restructuring, and bankruptcy. Prereq: MBA 6223, and BusFin 7210, concur: 7220 or 7230; or enrollment in SMB-Finance program.			
<b>7214</b>	<b>Corporate Financial Management IV</b>	<b>G</b>	<b>1½</b>
Advanced case studies in corporate finance. Prereq or concur: 7212 and 7213 (821), or 811 and MBA 810. Not open to students with credit for 828.			
<b>7215</b>	<b>Entrepreneurial Finance</b>	<b>G</b>	<b>1½</b>
Advanced study of the roles of Angel investing, business plans, and venture capital in entrepreneurial finance. Prereq: MBA 6223, concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7216</b>	<b>Private Equity</b>	<b>G</b>	<b>1½</b>
Theories of and applications in buyouts and private equity transactions. Prereq: MBA 6223, concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7218</b>	<b>Fixed Income Securities</b>	<b>G</b>	<b>1½</b>
An introduction to the mathematics and evaluation of US Dollar denominated fixed income instruments. Students will learn the underlying terms and conditions used in the fixed income markets and apply Excel based mathematical models to evaluate the pricing, yield, risk, and return attributes in the market. Prereq: MBA 6223, concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7220</b>	<b>Investment Theory and Practice</b>	<b>G</b>	<b>1½</b>
Advanced skills needed for securities valuation, theories and applications related to the CAPM, APT, and efficient markets. Prereq or concur: MBA 6223, or 810. Not open to students with credit for 822.			
<b>7221</b>	<b>Financial Modeling</b>	<b>G</b>	<b>1½</b>
Basic financial modeling techniques in EXCEL. Prereq: MBA 6223, or BusFin 6211, 6212, or 6220.			
<b>7222</b>	<b>Fixed Income Analysis</b>	<b>G</b>	<b>1½</b>
Valuation of fixed income securities as well as measures of their interest rate and credit risk. Prereq: MBA 6223. Prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7223</b>	<b>Quantitative Portfolio Management</b>	<b>G</b>	<b>1½</b>
Advanced investment strategies need for asset management and portfolio allocation. Prereq: MBA 6223. Prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7224</b>	<b>Trading &amp; Markets</b>	<b>G</b>	<b>1½</b>
Advanced theories of market design applied in an interactive trading simulation, Action-Based. Prereq: MBA 6223; or prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7225</b>	<b>Student Stock Market Investment Management</b>	<b>G</b>	<b>3</b>
Advanced topics with industry analysis and stock valuation applied to portfolio management. Prereq: MBA 6223, BusFin 7210, and 7220; or enrollment in SMB-Finance program.			
<b>7226</b>	<b>Behavioral Finance</b>	<b>G</b>	<b>1½</b>
Theories of behavioral finance, such as Prospect Theory, and their implications for investor behavior and markets. Prereq: MBA 6223; or prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7230</b>	<b>Derivatives Markets</b>	<b>G</b>	<b>1½</b>
Advanced investments class studying how to value options and related instruments using binomial pricing models and how to value and implement strategies using futures. Prereq or concur: MBA 6223. Not open to students with credit for 823.			
<b>7232</b>	<b>Derivatives Valuation and Application</b>	<b>G</b>	<b>1½</b>
Advanced derivatives course covering the Black-Scholes valuation model with applications to financial instruments and other areas of financial engineering. Prereq: MBA 6223; or prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7234</b>	<b>FinTech</b>	<b>G</b>	<b>1½</b>
Financial technology (FinTech) is revolutionary and rapidly changing the financial services industries. This graduate course provides an introduction to FinTech such as blockchain, cryptocurrencies (e.g., Bitcoin and Ethereum), alternative lending, machine learning, and robo-advising. Prereq: MBA 6223, or concur BusFin 7210 or 7220 or 7230, or enrollment in SMB-Finance program.			

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<b>7235</b>	<b>Applied Fundamental Investing</b>	<b>G</b>	<b>1½</b>
To find employment in this industry, it is necessary to know some of the specialized skills that are required, skills above and beyond those taught in typical Investments and Corporate Finance courses. The goal of this course is to provide an introduction to the tools needed to enter the field of professional money management. Prereq: MBA 6223; or prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7238</b>	<b>Valuation Analysis</b>	<b>G</b>	<b>1½</b>
This is a customized course for students in the MBA program and is an extension of the MBA 6223 course taken in the autumn semester. The course will review standard methodologies for valuing firms and equity. These techniques are widely used by analysts in investment banking and equity research. Prereq: MBA 6223.			
<b>7240</b>	<b>Principles of Real Estate</b>	<b>G</b>	<b>1½</b>
Topics in Real Estate planning and development, property management, and related property laws. Prereq: MBA 6223, or BusFin 6211, 6212, or enrollment in SMB-Finance program.			
<b>7241</b>	<b>Real Estate Finance</b>	<b>G</b>	<b>1½</b>
Advanced topics in real estate valuations with applications to mortgage-related instruments and REITs. Prereq: MBA 6223, BusFin 6211, 6212, or enrollment in SMB-Finance program.			
<b>7250</b>	<b>International Finance</b>	<b>G</b>	<b>1½</b>
Theories of FOREX, international capital markets, cross-border investments, and their implications for firms. Prereq or concur: MBA 6221 (810) or 6222. Not open to students with credit for 825.			
<b>7252</b>	<b>Investment Strategies and Philosophies</b>	<b>G</b>	<b>1½</b>
This course is designed to teach different investment strategies, reveal the beliefs that underlie each one, provide evidence on whether the strategies actually produce results, and what an investor needs to understand in order to implement a philosophy. The strategies covered include value investing, growth investing, technical analysis, market timing, arbitrage, fixed income. Prereq: MBA 6223; or prereq or concur: BusFin 7210, 7220, or 7230; or enrollment in SMB-Finance program.			
<b>7260</b>	<b>Financial Institutions</b>	<b>G</b>	<b>1½</b>
Main roles of financial institutions used by firms such as commercial banks, investment banks, and insurance companies. Prereq: MBA 6223, BusFin 6211, 6212, or enrollment in SMB-Finance program.			
<b>7290</b>	<b>Enterprise Risk Management I</b>	<b>G</b>	<b>1½</b>
Advanced theories of Corporate Risk Management, hedging strategies, and how to measure apply Value at Risk. Prereq: MBA 6223; or BusFin 7210, 7220, and 7230; or enrollment in SMB-Finance program.			
<b>7291</b>	<b>Enterprise Risk Management II</b>	<b>G</b>	<b>1½</b>
An Action-based Graduate level course. Students apply theories of risk management, hedging strategies, and value at risk to cases. Prereq: 829 or Prereq or concur: 7290. Not open to students with credit for 834.			
<b>7500</b>	<b>Recent Advances in Financial Markets</b>	<b>G</b>	<b>3</b>
Presentations to Korean Advanced Institute of Science and Technology (KAIST) students by faculty on current research topics. Prereq: Enrollment in KAIST program. Repeatable to a maximum of 6 or hrs.			
<b>7521</b>	<b>Building Financial Models</b>	<b>G</b>	<b>1½</b>
Advanced topics in financial modeling in EXCEL. Prereq: Enrollment in KAIST program. Not open to students with credit for 849.			
<b>7650</b>	<b>Personal Finance for the Health, Law and Public Policy Professionals</b>	<b>G</b>	<b>3</b>
This course is designed for the graduate student that wants to learn more about personal finance. Describe various behavioral biases and how they may impact their financial plan, and describe how credit is calculated and how it impacts one's financial plan. Prereq: Grad or Professional standing in Law, Pharmacy, or Veterinary Medicine. This course is graded S/U. Cross-listed in Phr.			
<b>7702</b>	<b>Applied Managerial Economics for Health Sciences</b>	<b>G</b>	<b>2</b>
To provide an economics-oriented framework for analyzing managerial and organizational problems, and to further the understanding of how a health science firm's internal rules of the game affect behavior and performance. Prereq: Admission into the Business Minor in Health Sciences.			
<b>7800</b>	<b>Advanced Topics in Finance for EMBA</b>	<b>G</b>	<b>1½ - 3</b>
Advanced topics in finance for students in the Executive MBA Program. Prereq: Enrollment in EMBA program. Repeatable to a maximum of 15 or hrs or 7 completions.			
<b>7999</b>	<b>Research in Finance: Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research for thesis purposes only. Repeatable to a maximum of 24 or hrs or 6 completions. This course is graded S/U.			

<b>8210</b>	<b>Seminar: Asset Pricing Theory</b>	<b>G</b>	<b>1½</b>
PhD level class covers the theoretical models related to contingent Claims, CAPM, APT, and Black Scholes. Prereq: Permission of instructor. Not open to students with credit for 920.			
<b>8220</b>	<b>Seminar: Empirical Asset Pricing</b>	<b>G</b>	<b>1½</b>
Covers empirical asset methods such as the Fama-McBeth techniques and GMM estimation. Prereq: Permission of instructor. Not open to students with credit for 921.			
<b>8230</b>	<b>Seminar: Corporate Finance Theory</b>	<b>G</b>	<b>1½</b>
Covers seminal theories of corporate finance such as those related to capital structures, contracting, and security design. Prereq: Permission of instructor. Not open to students with credit for 922.			
<b>8240</b>	<b>Seminar: Empirical Corporate Finance</b>	<b>G</b>	<b>1½</b>
Covers empirical research and mythologies in areas related to capital structure, investment, financial distress and governance. Prereq: Permission of instructor. Not open to students with credit for 922.			
<b>8250</b>	<b>Seminar: Advanced Asset Pricing</b>	<b>G</b>	<b>1½</b>
Covers advanced topics in empirical and theoretical asset pricing. Prereq: Permission of instructor. Not open to students with credit for 922.			
<b>8260</b>	<b>Seminar: Advanced Corporate Finance</b>	<b>G</b>	<b>1½</b>
Covers advanced topics in empirical and theoretical corporate finance. Prereq: Permission of instructor. Not open to students with credit for 924.			
<b>8280</b>	<b>Seminar: Research in Finance</b>	<b>G</b>	<b>1½</b>
Faculty lead introduction to research areas in Finance to first year finance PhD students. Prereq: Permission of instructor. Not open to students with credit for 880. Repeatable to a maximum of 9 or hrs.			
<b>8290</b>	<b>Seminar: Finance Research Topics</b>	<b>G</b>	<b>1½</b>
Advanced PhD student presentations of research in Finance. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 6 completions.			
<b>8999</b>	<b>Research in Finance: Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Repeatable to a maximum of 24 or hrs or 6 completions. This course is graded S/U.			

## Business Admin: Management & Human Rsrcs

<b>2000</b>	<b>Introduction to International Business</b>	<b>U</b>	<b>1½</b>
Basic coverage of world trade and investment problems, and introduction to multinational corporation strategies and the various types of environments in which they do business. Prereq: Econ 2002.01 (201), and Econ 2001.01 (200) or AEDEcon 2001 (200). Not open to students with credit for BusAdm 555. Not open to students enrolled in UUSS, UExp or PreBSBA-PR.			
<b>2210</b>	<b>Personal Leadership and Team Effectiveness</b>	<b>U</b>	<b>3</b>
Effective management practices and how leadership practices lead to effective team and organizational performance.			
<b>2210H</b>	<b>Personal Leadership and Team Effectiveness</b>	<b>U</b>	<b>3</b>
Effective management practices and how leadership practices lead to effective team and organizational performance.			
<b>2292</b>	<b>Business Skills &amp; Environment</b>	<b>U</b>	<b>3</b>
Introduce the role of business in the lives of individuals, consumers, employees, and citizens. Focus on the concept of ethical leadership with emphasis on both oral and written communication skills for the business environment. Prereq: English 1110.01 (110), or equivalent; and admission to the Business Administration major. Not open to students with credit for BusAdm 499, 499.01, or BusMHR 2291. Not open to pre-business students.			
<b>2292H</b>	<b>Business Skills &amp; Environment</b>	<b>U</b>	<b>3</b>
Introduce the role of business in the lives of individuals, consumers, employees, and citizens. Focus on the concept of ethical leadership with emphasis on both oral and written communication skills for the business environment. Prereq: English 1110.01 (110) or equivalent, honors standing, and admission to the Business Administration major program. Not open to students with credit for 2291, 2292, or BusAdm 499(H).			
<b>2400</b>	<b>IBE Competitive Analysis Seminar</b>	<b>U</b>	<b>1</b>
Students will develop and apply a series of conceptual models that illustrate interactions between competitive strategy and patterns of technological, market and competitive change. Models will provide means to consider which firms benefit from market change, why existing firms fail to incorporate innovation in a timely manner and the types of markets in which a given firm should invest. Prereq: Admission to the Integrated Business and Engineering major.			
<b>2500</b>	<b>Entrepreneurship</b>	<b>U</b>	<b>3</b>
Assesses economical, sociological, and psychological foundations of entrepreneurship and its impact on society. Prereq: Not open to students with credit for BusMHR 290. GE soc sci human, nat, and econ resources course.			

## Business Admin: Management & Human Rsrcs 67

<b>3000</b>	<b>Advanced Topics in International Business</b>	<b>U</b>	<b>3</b>
Advanced topics in international business including strategy, alliances, and exchange. Prereq: 2000. Not open to students with credit for 4010 or International Business Minor students.			
<b>3100</b>	<b>Foundations of Management and Human Resources</b>	<b>U</b>	<b>3</b>
The study of human behavior in organizational settings. Prereq: Math 1130 and Econ 2001.01. Not open to students enrolled in the Fisher College of Business.			
<b>3193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
Individual study projects in selected areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for BusAdm 493. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group study projects in selected areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 494.			
<b>3200</b>	<b>Managing Individuals in Organizations: Organizational Behavior and Human Resources</b>	<b>U</b>	<b>3</b>
Principles for managing the performance of individuals and groups in organizations; introduction to organizational behavior theory and its application to staffing, training, compensation, and appraisal. Prereq: Econ 2001.01 (200) and 2002.01 (201), or equivalent. Not open to students with credit for 3100 (400) or 701. Not open to students enrolled in UUSS, UExp or PreBSBA-PR.			
<b>3200H</b>	<b>Managing Individuals in Organizations: Organizational Behavior and Human Resources</b>	<b>U</b>	<b>3</b>
Principles for managing the performance of individuals and groups in organizations; introduction to organizational behavior theory and its application to staffing, training, compensation, and appraisal. Prereq: Econ 2001.01 (200) and 2002.01 (201); or equivalents; and enrollment in the Business Administration Honors Cohort Program. Not open to students with credit for BusMHR 701 or 701H.			
<b>3211</b>	<b>Leadership and Character</b>	<b>U</b>	<b>3</b>
Issues of leadership as related to value-based decision making, character, and personal integrity.			
<b>3220</b>	<b>Leadership Legacy</b>	<b>U</b>	<b>3</b>
Exposes students to practical applications of good organizational management and leadership practices. Prereq: English 1110.01 or equiv. Not open to students with credit for 542.			
<b>3221</b>	<b>Innovation and Leadership</b>	<b>U</b>	<b>3</b>
This course is built on intellectual and experiential engagement with innovative leadership. Students are challenged to develop better problem-solving skills in a team-oriented atmosphere, and through the use of creativity, learn to view challenges from new and different perspectives. Cross-listed in ESHESA.			
<b>3303</b>	<b>HR Analytics</b>	<b>U</b>	<b>3</b>
This course is intended to prepare students with the necessary tools for using data analysis to inform HR decision-making and to analyze issues and problems in HRM. Prereq: English 1110.01 or equiv.			
<b>3400</b>	<b>IBE Innovation Management Seminar</b>	<b>U</b>	<b>1</b>
Provides students the opportunity to apply basic competitive analysis theories/tools to analyze "real-world" firms. Prereq: 2400.			
<b>3500</b>	<b>High Stakes Leadership</b>	<b>U</b>	<b>1½</b>
Considers the unique challenges involved in high stakes leadership - situations when leadership can mean the difference between life & death. Students will learn skills that will prepare them for an outdoor, team-based, high stakes experience. Topics: self-leadership, managing emotions, risk assessment, leadership emergence, decision-making, trust, communication, teamwork, & active followership. Repeatable.			
<b>3501.01</b>	<b>Buckeye Leaders Expedition</b>	<b>U</b>	<b>1½</b>
Skill-building exercises specifically designed to extend and test the concepts introduced in MHR 3500. This class involves journeys and exploration, where we actually practice the techniques in unique, challenging, and beautiful environments. In this particular expedition, we expand our scope by first visiting a local climbing venue, and then several climbing areas throughout Ohio. Prereq: 3500. Repeatable.			
<b>3501.02</b>	<b>Seneca Leaders Expedition</b>	<b>U</b>	<b>1½</b>
This course applies a model of leadership we have developed and to which students are introduced to in MHR 3500. The expedition is a blend of climbing activities, whitewater rafting, biking. The climbing portion of the expedition involves locations at the New River Gorge National River and Seneca Rocks National Park. Prereq: 3500. Repeatable.			

<b>3501.03</b>	<b>Rocky Mountains Leaders Expedition</b>	<b>U</b>	<b>1½</b>
Skill-building exercises designed to extend & test the concepts introduced in MHR 3500. This class is a blend of mountaineering and technical climbing. The mountaineering portion involves climbing 4 of Colorado's highest peaks including Long's Peak. The technical climbing portion involves climbing 3 of the most iconic climbing venues in the US. Prereq: 3500. Repeatable.			
<b>3501.04</b>	<b>High Stakes Leadership Virtual Expedition</b>	<b>U</b>	<b>1½</b>
This course builds off the High Stakes Leadership Model (HSLM), which is introduced in BusMHR 3500. Students will apply the skills reflected in the HSLM to activities that simulate settings found on high stakes expeditions. A central objective of the course is to prepare students for expedition scenarios & build quality relationships with fellow team members prior to the expedition. Prereq: 3500. Repeatable to a maximum of 4.5 cr hrs.			
<b>3510</b>	<b>Innovation and Entrepreneurship</b>	<b>U</b>	<b>3</b>
Examines the many dimensions of new business creation and the fostering of innovation. Prereq: Not open to students with credit for 490, 490.01, 3510.01 or 3510.02.			
<b>3511</b>	<b>Value Creation in the Social Enterprise</b>	<b>U</b>	<b>3</b>
Value creation in social enterprise helps non-profits with various resources needed to aid in their growth and contribute to their sustainability. The course tracks its history, the foundations spearheading the movement, and development of the earned income model. It also covers the legal structures and financing tools in place for non-profits created with a mission to be better served. Prereq: English 1110.01 or equiv.			
<b>3543</b>	<b>Franchising</b>	<b>U</b>	<b>3</b>
Planning, building, and leading franchise organizations and franchising as a growth strategy. Prereq: BusMHR 2500 (290).			
<b>4010</b>	<b>International Business Strategies</b>	<b>U</b>	<b>1½</b>
This course highlights how firms make decisions to go abroad, select among foreign markets, and develop international strategies to enhance their profitability and long-term competitive advantage. It will also highlight economic and political risks of international business and discuss ways that firms can mitigate these risks. Prereq: 2000. Not open to students with credit for 3000, or International Business Major students.			
<b>4020</b>	<b>Cross Cultural Management</b>	<b>U</b>	<b>3</b>
Basic elements of culture and its impact upon business. Prereq: 2000.			
<b>4021</b>	<b>Institutions of the International Business Environment</b>	<b>U</b>	<b>3</b>
Major international institutions and the role they play in international business and commerce. Prereq: 2000.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
Individual study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 693. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>4194.61</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 694.51.			
<b>4194.62</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 694.52.			
<b>4194.63</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 694.53.			
<b>4194.64</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 694.54.			
<b>4194.65</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 694.55.			
<b>4221</b>	<b>Concepts and Competencies for Managing People</b>	<b>U</b>	<b>3</b>
Application of concepts to managing oneself and others in real work situations, includes practice of behavioral skills such as delegation, persuasion and performance feedback. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 704.			
<b>4228</b>	<b>Introduction to Organizational Business Coaching</b>	<b>U</b>	<b>3</b>
For students interested in building their own organizational and leadership coaching skills; class will explore the various roots and perspectives of modern coaching while building the skills of coaching which center upon but are not limited to deep listening, coaching presence, business acumen, cultural dynamics, and powerful questioning. Prereq: English 1110.01 or equiv.			

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<b>4235</b>	<b>Developing Leaders through Practical Exercises</b>	<b>U</b>	<b>3</b>
This course is taught in a layered effect starting with basic leadership principles and ends with complex practical exercises challenging students to become better leaders. The leader development program incorporates leadership principles, practical exercises, case studies, and assessment to train and develop future leaders. Prereq: English 1110.01 or equiv.			
<b>4236</b>	<b>Crucial Conversations</b>	<b>U</b>	<b>3</b>
Building skills for handling tough conversations; practical ways to manage disagreement and disappointment in a constructive manner. Provides method for straight talk that moves people and positions forward. Principles further build a capacity to hold people accountable while increasing commitment & performance. Drives impact and competitive advantage at the leader, team, and organizational level. Prereq: English 1110.01 or equiv.			
<b>4244</b>	<b>Negotiations</b>	<b>U</b>	<b>3</b>
This course will explore the major concepts and theories of negotiation and the dynamics of interpersonal and inter-group negotiation and problem-solving strategies. Prereq: English 1110.01 or equiv. Not open to students with credit for 4220.			
<b>4320</b>	<b>Human Resource Management in a Market Economy</b>	<b>U</b>	<b>3</b>
Application of economic theory to organizations and labor markets; emphasis on the role of labor market analysis in human resource decision-making. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 651.			
<b>4321</b>	<b>International Labor and Human Resource Management</b>	<b>U</b>	<b>3</b>
Examination of the human resource challenges that emerge in multinational organizations, and emphasis on issues to be considered when preparing oneself and others for international assignments. Prereq: 2000 and 3200.			
<b>4322</b>	<b>Human Resource Learning: Training and Development</b>	<b>U</b>	<b>3</b>
Introduction to concepts and organization practices associated with designing, implementing, and evaluating different types of employee training and development programs. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 703.			
<b>4323</b>	<b>Human Resource Practices and the Law</b>	<b>U</b>	<b>3</b>
Review of federal laws and administrative bodies regulating employee management in the workplace; emphasis on gaining practical skills for managing human resource issues legally. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 653.			
<b>4324</b>	<b>Staffing: Concepts and Competencies for Acquiring Talent</b>	<b>U</b>	<b>3</b>
Introduction to the scientific, legal, and administrative issues associated with the recruitment, hiring, and placement of individuals by organizations. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), 4323 (653), and AcctMIS 2200 (211), 2300 (212), BusMgt 2320 (330), 2321 (331); or enrollment regional Business Management program. Not open to students with credit for 756.			
<b>4325</b>	<b>Labor Relations and Collective Bargaining</b>	<b>U</b>	<b>3</b>
Examination of basic aspects of labor relations and collective bargaining including labor history, labor law, union structure and governance, labor-management bargaining, and contract administration. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 761.			
<b>4326</b>	<b>Compensation and Benefits Administration</b>	<b>U</b>	<b>3</b>
Provides a comprehensive framework and state-of-the-art tools for designing compensation systems via assessment of organizational needs, internal and external equity, and compensation administration. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 762.			
<b>4328</b>	<b>Performance Management</b>	<b>U</b>	<b>3</b>
Measure and develop performance of individuals and groups to align performance with organization's strategic objectives. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331).			
<b>4330</b>	<b>Strategic Human Resource Management</b>	<b>U</b>	<b>3</b>
Examination of a strategic perspective for managing employees that emphasizes the use of ethical practices and evaluates how practices fit together with organizational objectives. Prereq: 2291 or 2292 (BusAdm 499.01); and 3200 (701), and AcctMIS 2200 (211), 2300 (212), and BusMgt 2320 (330), 2321 (331). Not open to students with credit for 769.			
<b>4490</b>	<b>Strategic Management</b>	<b>U</b>	<b>3</b>
Introduction to the concepts and analytic tools in the field of strategic management to understand the competitive position of firms. Prereq: 2000 (BusAdm 555), 2292 (BusAdm 499.01), 3200 (701), and BusMGT 2320 (330), 2321 (331), 3230 (630), and BusFin 3500 (510), 3220 (620), and BusML 3250 (650), 3380, and Sr standing in Business Administration major program. Not open to students with credit for BusAdm 799. Not open to students in UUSS, UEXP, or PREBSBA-PR.			

<b>4490H</b>	<b>Strategic Management</b>	<b>U</b>	<b>3</b>
Introduction to the concepts and analytic tools in the field of strategic management to understand the competitive position of firms. Prereq: 2000 (BusAdm 555), 2292 (BusAdm 499.01), and 3200 (701); and BusMgt 2320 (330), 2321 (331), and 3230 (630); and BusFin 3500 (510), and 3220 (620); and BusML 3250 (650), and 3380; and Sr standing in Business Administration Honors program. Not open to students with credit for BusAdm 799H.			
<b>4520E</b>	<b>Leading High Performance Ventures</b>	<b>U</b>	<b>3</b>
Focuses on concepts, frameworks, skills, and tools that enable a start-up to become a sustainable enterprise that creates jobs. Option available for honors students to do extra work for Honors credit. Prereq: Not open to students with credit for 3520 or 590.			
<b>4550</b>	<b>Capstone in Entrepreneurship: Starting the Business</b>	<b>U</b>	<b>3</b>
Students will start a business, including all aspects involved in a start-up. Second half of the course is a one-semester independent based on their start-up experience. This immersion course is required to earn an Entrepreneurship Distinction and Fellowship designation.			
<b>4570</b>	<b>Establishing Import-Export Firms</b>	<b>U</b>	<b>3</b>
To teach students how to get an export business started, how to compete in a global market and how to expand the business globally. Prereq: 2000, and permission of instructor.			
<b>4627</b>	<b>Leveraging Athletics for Business and Personal Success</b>	<b>U</b>	<b>3</b>
Study of complexities confronting professional athletes. Despite perceived glamour surrounding professional sports, many former stars become directionless and penniless when their playing careers end. Classroom experience through readings and assignments will explore how this can occur and attempt to understand and offer activities and behaviors that lead to life success.			
<b>4998</b>	<b>Undergraduate Research in Management and Human Resources</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate Research in Management and Human Resources for non-honors students. Prereq: BusAdm 2291 (499), and Jr standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 3</b>
Special topics research in management and human resources; research evaluated through papers, thesis, and/or special examinations. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.			
<b>5530</b>	<b>Topics in Social Entrepreneurship</b>	<b>U G</b>	<b>3</b>
Developing a business plan in social entrepreneurship. Prereq: Not open to students with credit for 691 or 694.52.			
<b>7010</b>	<b>Advanced topics in Multinational Business</b>	<b>G</b>	<b>1½</b>
Examination of topics in international business, including the role of cultural and political systems, trade and FDI, and multinational enterprise. Prereq: MBA 6261 (820). Not open to students with credit for BusAdm 856.			
<b>7013</b>	<b>China and Its Global Business Implications</b>	<b>G</b>	<b>1½</b>
Introduction to the historical, economic, cultural, social and geopolitical circumstances of China's rise, and its global business repercussions. Prereq: Not open to students with credit for 833.			
<b>7022</b>	<b>GAP: Global Applied Projects</b>	<b>G</b>	<b>3</b>
Students plan and execute real-world consulting engagement. Spring 2: students attend lectures on project management, cultural awareness, other relevant topics, and work part-time on self-managed teams guided by Coach/Faculty Advisor. In May, students travel abroad, work full-time to complete assignment and deliver final presentation to client. By application only. Mandatory info session. Prereq: Permission of instructor.			
<b>7191</b>	<b>HR Practicum</b>	<b>G</b>	<b>3</b>
Supervised practical experience relating to labor and human resources. Prereq: Permission of instructor.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Individual study projects in selected interdisciplinary topics in business administration. Prereq: Enrollment in BusAdm or LHR PhD program, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>7194.61</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 894.61.			
<b>7194.62</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 894.62.			
<b>7194.63</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Group study projects in related areas in management and human resources. Prereq: Permission of instructor. Not open to students with credit for 894.63.			

**7194.64 Group Studies G 1 - 5**

Group study projects in related areas in management and human resources.  
Prereq: Permission of instructor. Not open to students with credit for 894.64.

**7194.65 Group Studies G 1 - 5**

Group study projects in related areas in management and human resources.  
Prereq: Permission of instructor. Not open to students with credit for 894.65.

**7220 Personal Leadership Effectiveness G 3**

The ability to successfully execute any project or assignment; attaining mastery in identifying, resolving problems, gaining mastery in causing results in any condition/circumstance.  
Prereq: MBA 6200 or 6202 (860). Not open to students with credit for 834.

**7221 Leadership Values and Decision Making G 1½**

This course explores the multiple ways that personal character and integrity, and organizational culture, affect leadership behavior, from both ethical and psychological perspectives. The course will employ readings, cases, speakers and self-assessment tools, and analysis of both historical and contemporary examples.  
Prereq: Enrollment in MBA, WP MBA, MHRM, or MAcc program, or permission of instructor. Not open to students with credit for 840.

**7222 Advanced Topics in Leadership: Building Your Leadership Legacy G 1½ - 3**

Development of a personal leadership legacy designed to achieve career goals and improve leadership skills.  
Prereq: Enrollment in MBA, WP MBA, MHRM, or MAcc program, or permission of instructor.

**7223 Advanced Topics in Leadership Effectiveness: Strategy Implementation G 1½**

Study strategy needed for organizational alignment; implementation, execution of strategic priorities; and organizational culture, leadership, structure, communications, compensation, metrics relative to effective execution of strategy.  
Prereq: Enrollment in MBA, WP MBA, MLHR or MAcc program or permission of instructor. Not open to students with credit for 847.

**7224 Organizational Turnarounds G 1½**

Case studies of organizational turnarounds.  
Prereq: Enrollment in MBA, WP MBA, MHRM, or MAcc program; or permission of instructor. Not open to students with credit for 843.

**7225 Crisis Leadership G 1½**

Studies of leaders and organizations facing crises to understand how to be successful in handling such challenges.  
Prereq: Enrollment in MBA, WP MBA, MLHR, or MAcc program; or permission of instructor. Not open to students with credit for 843.

**7228 Introduction to Organizational Business Coaching G 1½**

For students interested in building their own organizational and leadership coaching skills; class will explore the various roots and perspectives of modern coaching while building the skills of coaching which center upon but are not limited to deep listening, coaching presence, business acumen, cultural dynamics and powerful questioning.  
Prereq: Enrollment in MBA, WP MBA, MHRM, or permission of instructor.

**7229 Advanced Organizational Business Coaching G 1½**

This course follows Introduction to Organizational Business Coaching and intends to broaden the learners lens beyond the one-on-one coaching or coaching as a leadership skillset and venture into how coaching cultures evolve, what the coaching industry holds, and eventually will build on more complex skills in several modules on Systemic Organizational Team Coaching.  
Prereq: 7228, and enrollment in MBA, WP MBA, or MHRM.

**7230 Developing High Performance Teams G 1½**

Groups and teams are becoming a way of life in organizations. This course will teach the theory and processes of group and team behavior so that you can successfully manage groups and work effectively in a variety of group settings. It is intended for students who seek greater understanding of teams and wish to increase their competence in managing and working effectively in these contexts.  
Prereq: Not open to students with credit for 828.

**7231 Building Professional Services G 1½**

Innovative ideas for building professional service organizations; best practices; strategies; market trends/service capabilities at product-centric companies; cultural issues facing service businesses within product companies.  
Prereq: Not open to students with credit for 824.

**7233 Leadership and Implementation of Change G 3**

Expand understanding of what is involved in the successful implementation of change. Discuss key elements in leading and managing change. Focus on individual's ability to accomplish change regardless of position or authority.  
Prereq: Not open to students with credit for 7232 (809) or 7220 (834).

**7234 Developing Leaders and Coaches Through Practical Exercises G 3**

The course starts with basic leadership and coaching principles and ends with complex practical exercises challenging students to become better leaders. The course progresses, allowing the student to build upon the lessons learned through the course. The program incorporates planning, preparation, practical exercises, case studies, coaching and assessment to train and develop future leaders.

**7235 Developing Leaders through Practical Exercises G 1½**

This course is taught in a layered effect starting with basic leadership principles and ends with complex practical exercises challenging students to become better leaders. The leader development program incorporates leadership principles, practical exercises, case studies, and assessment to train and develop future leaders.  
Prereq: Not open to students with credit for 7228, 7229, and 7234.

**7236 Crucial Conversations G 3**

Building skills for handling tough conversations; practical ways to manage disagreement and disappointment in a constructive manner. Provides method for straight talk that moves people and positions forward. Principles further build a capacity to hold people accountable while increasing commitment & performance. Drives impact and competitive advantage at the leader, team and organizational level.

**7237 The Science of Leading G 3**

This course will take a scientific approach to leadership. The Matrix Leadership Model that will guide the course articulates four stages of leader development: Build-Decide-Perform-Evaluate and divides leader's activities into Leader (primarily at the leader level) and Follower (primarily at the follower or team level). At the center are two enabling mechanisms: Analyzing and Inspiring.

**7238 Leadership Effectiveness Through Applied Projects and Team Coaching G 3**

Hone, develop, and apply leadership competencies through a real-world consulting project while receiving on-going individual and team coaching.  
Prereq: Enrollment in a Fisher College of Business grad program, or permission of instructor.

**7239 BUILD Leadership Development G 3**

This course is designed to help identify leadership strengths and weaknesses and use evidence-based, experiential course materials/activities to help develop and practice KEY leadership competencies. We will use the evidence-based and comprehensive BUILD leadership model to guide our course content and developmental activities.

**7244 Negotiations G 1½ - 3**

Highlight the components of an effective negotiation and teach students to analyze their own behavior in negotiations. Largely experiential, course provides students with an opportunity to develop their skills by participating in negotiations and integrating their experiences with the principles presented in the assigned readings and course discussions.  
Prereq: Enrollment in Fisher College of Business graduate programs. Not open to students with credit for 7240, 7241, or 7345.

**7260 Organizational Behavior for Specialized Masters G 1½**

Introduction to topics in organizational behavior with a focus on applications for MBLE students.  
Prereq: Enrollment in MBLE, Specialized Masters in Logistics, or Specialized Masters in Marketing, or permission of instructor.

**7261 Leadership for Specialized Masters G 1½**

Introduction to topics in leadership with a focus on applications for specialized business masters students.  
Prereq: Enrollment in MBLE, Specialized Masters in Logistics, or Specialized Masters in Marketing, or permission of instructor.

**7263 Leadership for SMB Finance Students G 1½**

An overview of factors that influence individual work performance and techniques; analytical frameworks for determining effectiveness of given techniques in specific circumstances.  
Prereq: Enrollment in SMB Finance program, or permission of instructor. Not open to students with credit for MBA 860.

**7270 Leadership and Organizations G 1½**

This course covers the role of leadership in management and the use of power and influence to motivate individuals and effect organizational change. It provides students with the opportunity to develop personalized leadership development plans based on current literature, case study, and behavioral assessments.  
Prereq: Enrollment in SMB-Analytics program, or permission of instructor.

**7301 The Future of HR G 3**

Provide students with an overview of the HRM profession with a focus on the future. The course emphasizes an understanding of HRM policies & practices, how HRM functions are organized, the role of HRM in business today as well as in the future, & the competencies needed to be a successful HR practitioner. The history of HRM is reviewed to provide an understanding of the forces that influenced HRM.

**7302 Markets, Organizations, and HRM G 1½**

The employment relationship from an economic perspective; economic analysis applied to important managerial decisions involving the coordination and motivation of organizational members.  
Prereq: Not open to students with credit for 854.

**7303 HR Analytics G 1½**

Examination of the concepts, methods, and tools needed to conduct and evaluate research for effective human resources management decision making.  
Prereq: Enrollment in the MHRM program. Not open to students with credit for 811.

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**7304 Talent Management** G 1½

Overview of concepts, practices, issues and learnings related to strategically managing talent to develop organizational capability and meet strategic business goals and objectives.  
Prereq: Not open to students with credit for 846.

**7305 Contemporary Employment Practices and the Law** G 1½

Title VII of the 1964 Civil Rights Act, The Equal Pay Act, the Age Discrimination in Employment Act, the Civil Rights Act of 1967, and federal affirmative action program.  
Prereq: Enrollment in MHRM program. Not open to students with credit for 868.

**7306 Understanding Teams & Leadership for Human Resource Managers** G 1½

A focus on the manager's role in dealing with individuals and work teams. Other topics include: work design, communications, leadership and motivation.  
Prereq: Enrollment in MHRM program.

**7307 Performance Management** G 1½

Measure & develop performance of individuals & groups & align performance with organization's strategic objectives; methods, theories, research findings, issues regarding employee performance in organizations.  
Prereq: Not open to students with credit for 849.

**7308 Organizational Change & Project Management** G 3

The primary focus for this course is the nature of change within organizations (of all types). Any discussion of organization change also benefits from at least some discussion of organization design and development. The course will examine the nature and implementation of organization change itself.

**7309 Strategic Management of Human Assets** G 1½

Theory and research regarding teamwork and leadership, to enhance understanding/build skills in team leadership, membership, change and followership.  
Prereq: Not open to students with credit for 869.

**7310 Labor Relations** G 1½

Examination of the basic elements of labor-management relations, including the process and content of collective bargaining.  
Prereq: Not open to students with credit for 861or 864.

**7311 Staffing & Talent** G 3

The course will look at the entire talent life cycle including four major categories: Talent Acquisition, Performance Management, Talent Development, and Talent Planning.

**7313 Total Rewards/Compensation** G 3

Introduction to pay systems; including job evaluation, pay surveys, performance appraisals, and benefits.  
Prereq: Not open to students with credit for 865.

**7314 Designing Learning Systems** G 1½

Course will cover the learning function in organizations broadly defined to include training, development, knowledge management and career management. The concepts, methods, and issues discussed in the course are applicable to all types of organizations and jobs.

**7320 MBA in a Semester** G 3

This course is designed to give a student with little or no prior business experience a quick overview of key business functions. The objective of the course is to help you become better HR managers by enhancing your understanding of strategy, the general business environment, operations & technology, marketing, and finance.  
Prereq: Enrollment in MLHR program.

**7321 Fundamentals of Business Excellence II** G 3

Focus on developing specialized knowledge of functional areas and process in modern organizations.  
Prereq: 7320 (863), or permission of instructor.

**7322 Fundamentals of Business Excellence III** G 3

Presentation of the strategic and tactical issues related to effective implementation and practice in HR.  
Prereq or concur: 7321, or permission of instructor.

**7325 International Human Resource Management** G 1½

Course is an overview of managing human resources across borders, with emphasis on the strategies and practices of multinational corporations, and examines the opportunities & challenges of operating in a global economy, how cross-national differences shape approaches to business and human resource management, and analysis of future trends and challenges in international human resource management.  
Prereq: Enrollment in MHRM program.

**7335 Managing Diversity** G 1½

Best practices and innovative ideas in managing diversity, the impact of diversity within and outside the organization, and how diversity creates value for an organization.  
Prereq: Grad standing.

**7345 HR Bargaining** G 1½

Human Resource Managers need both analytical skills to discover optimal solutions to problems and good bargaining skills to effectively implement those solutions. Through this course, students will learn the major concepts and theories of bargaining in human resource management and develop expertise in the practice of bargaining in a variety of human resource management settings.

Prereq: Enrollment in MHRM program. Not open to students with credit for or concurrent enrollment in 7244.

**7412 Competitive Analysis** G 1½

Tools to identify, parse, and analyze the economic and market data necessary to complete a comprehensive strategic analysis of business competition. Application of major steps in industry analysis, competitive positioning, capability analysis, competitor analysis, and some private equity valuation.

Prereq: Enrollment in MBA or WPMBA program, or permission of instructor. Not open to students with credit for 838.

**7413 Advanced Strategic Analysis** G 1½

Course objective is to analyze a firm's competitive situation and related strategies to create competitive advantage in a more realistic setting than is possible using the traditional case method. Theoretical frameworks learned in the core strategy course among others are applied to firms using real-time data from multiple public sources in order to create well-grounded insights about a firm.

**7415 Corporate Diversification** G 1½

A study of corporate strategies, actions firms take to gain competitive advantages: strategies studied will include corporate diversification and mergers and acquisitions.

Prereq: Enrollment in MBA or WPMBA, or permission of instructor. Not open to students with credit for 839.

**7420 Mergers, Acquisitions and Corporate Development** G 1½

Analyzes mechanisms underlying the creation and destruction of value in M&A by studying issues such as: drivers of M&A, value creation strategies, valuation and integration.  
Prereq: Enrollment in MBA, MHRM, MAcc program, or permission of instructor. Not open to students with credit for 808.

**7421 Intopia: Applied Competitive Strategy** G 3

Focuses on international operations business simulation INTOPIA and student's companies operations in it. Each company must be well prepared to make and execute decisions.  
Prereq: Enrollment in MBA or WPMBA program, or permission of instructor. Not open to students with credit for 836.

**7433 Advanced Strategy Implementation** G 3

The aim of this course is to help students gain an organization design perspective on challenges in strategy formulation and implementation, especially in multi-business firms.  
Prereq: Enrollment in MBA, WPMBA, MHRM, or MAcc program, or permission of instructor.

**7461 Technology and Innovation Strategy** G 1½

How technology strategy may lead to creation/persistence of competitive advantage. In contrast to core strategy course, provides series of strategic frameworks for managing high-tech businesses.

Prereq: Enrollment in MBA, WPMBA, MLHR, MHRM, or MAcc program; or permission of instructor. Not open to students with credit for 848.

**7522 Entrepreneurship and the Business Plan** G 3

Experiential opportunities in entrepreneurship, entrepreneurial concepts, and financing and executing the business plan.  
Prereq: Not open to students with credit for 7520 or 7521 (825).

**7525 Global Innovation and Entrepreneurial Leadership** G 3

Field study projects to introduce venture capital, private equity, technology commercialization and new venture strategy.

**7531 Technology Venture Lab** G 3

Executing the "live" launch of new ventures utilizing lean startup principles, the business model canvas and the customer discovery process for creating scalable, investment-worthy ventures.  
Prereq: Permission of instructor. Not open to students with credit for 891. Repeatable to a maximum of 6 or hrs.

**7533 Managing a Not-for-Profit Business** G 1½

General introduction and business analysis of not-for-profit businesses and business solutions to issues facing not-for-profit leaders. Focus will be the fundraising model implemented at the university. Topics will include administration, finance, resource development, donor relations, capital campaigns, event planning and volunteer management.

**7543 Understanding Commercial and Social Franchising** G 3

This course will explore the business and legal requirements of franchising in the United States and internationally. It will provide students with an understanding of how to design and develop consistent and sustainable commercial and social franchise systems.  
Prereq: Enrollment in MBA program, or permission of instructor.

**7605 The Business of College Sports** G 3

Business analyses of intercollegiate athletics, including an in depth look at OSU athletic program. College sports administration, educational, and business missions.  
Prereq: Enrollment in the MBA, WPMBA, MLHR, MHRM or MAcc program; or permission of instructor. Not open to students with credit for 870 or KnSISM 6842. Cross-listed in KnSISM 6842.



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**7610 Business Ethics** G 1½

Developing ethical perspectives in the business environment for use in managerial decision-making.  
Prereq: Not open to students with credit for 859.

**7611 International Corporate Compliance and Ethics Governance** G 1½

Managers face increasing compliance standards for multinational enterprises that governments view as reducing corruption and promoting ethical business practices. Anti-corruption prohibitions, codes of conduct, and model ethics guidelines are no longer limited to business conducted solely with governments, but also apply to NGOs.  
Prereq: Grad standing in the Fisher College of Business.

**7612 Ethics and Leadership Integrity in a Global Economy** G 3

This course will explore fundamental concepts and false assumptions in ethical issues facing corporate actors and business decision-making, explore the factors, steps, and pressures that accompany making ethical business decisions and that reflect leadership integrity, and consider ethical dilemmas faced by enterprises that arise internationally under these measures and best ethics practices.  
Prereq: Not open to students with credit for 7610 or 7611.

**7614 Enterprise Governance, CSR, and Decision-Making - An Ethical Perspective** G 1½

This course will explore these fundamental questions and next-generation enterprise issues using readings, cases, group presentations, and speakers.

**7629 Prof Business Communication Skills** G 1½ - 3

The purpose of this course is to create and build a baseline of communication skills used in business and industry. In addition to foundation skills, the course focuses on key elements of style and "polishing up techniques" in the presentations arena.  
Prereq: MBA 6281.01. Not open to students with credit for 7268.

**7640 Strategies for Business Sustainability: Principles and Concepts** G 1½

Examination of the principles and concepts involved in developing sustainable businesses.  
Prereq: Not open to students with credit for 841.

**7660 Innovation Practice** G 1½

Theory and application of innovation practices as well as a framework for commercial application.

**7689 Washington Campus** G 1½ - 3

Week-long program in Washington DC on public policy. Presentations by policy-makers, trips to agencies, and participation in congressional simulation.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**7703 Leadership, Talent Management, and Organizational Behavior in Health Sciences** G 2

Provides an overview of factors that influence individual and team performance and techniques to improve it with an emphasis on the businesses in the life sciences and healthcare for managerial decision making.  
Prereq: Enrollment in the Graduate Business Minor in Health Sciences.

**7704 Contemporary Topics in HR & Professional Development** G 1

Intended to be primarily discussion based & academically challenging. Increase problem solving & written/oral communication skills. Challenge students to think in ways they may have never thought before whilst the objectives are to further develop the student's critical thinking skills, grit, perseverance, resourcefulness, confidence, cognitive skills and the ability to collaborate and innovate.  
Prereq: Enrollment in MHRM program. Repeatable to a maximum of 3 cr hrs.

**7714 Strategy and Competitive Analysis for Health Sciences** G 1½

Course focuses on creation of long term value for organizations in the health sciences industry and provides practical tools for strategic analysis of industries and individual practices for competitive strategies.  
Prereq: 7264 or 7703, BusMgt 7256 or 7701, and BusFin 7400 or 7702; and enrollment in the Graduate Business Minor in Health Sciences.

**7800 Advanced Topics in Management and Human Resources for EMBA** G 1 - 3

Advanced Topics in Management and HR for students in the Executive MBA Program.  
Prereq: Enrollment in EMBA program. Repeatable to a maximum of 15 cr hrs or 7 completions.

**7999 Research in Management and Human Resources: Thesis** G 3

Research for thesis purposes only.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 4 completions. This course is progress graded (S/U).

**8001 Seminar: Seminar in International Business** G 1½

A critical study of current theories and research methodologies and findings in the field in international business.  
Prereq: Enrollment in the Fisher College of Business Ph.D program, or permission of instructor. Not open to students with credit for 925.01.

**8002.01 Advanced Seminar: Selected Issues in International Business I** G 1½

Current and key issues in international management analyzed from an interdisciplinary perspective.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**8002.02 Advanced Seminar: Selected Issues in International Business II** G 1½

Additional current and key issues in international management analyzed from an interdisciplinary perspective.  
Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8201 Management Seminar: Seminar in Organizational Behavior** G 1½

Discussions of theory and research on organizational behavior.  
Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8202.01 Advanced Seminar: Selected Issues in Organizational Behavior I** G 1½

Advanced discussions of theory and research on organizational behavior.  
Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8202.02 Advanced Seminar: Selected Issues in Organizational Behavior II** G 1½

Additional advanced discussions of theory and research on organizational behavior.  
Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8203 Seminar: Seminar in Organizational Theory** G 1½

Theory, research on environmental and structural characteristics of formal organizations and their correlates with particular emphasis on management of the organization in dynamic, global environment.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor.

**8301 Management Seminar: Seminar in Human Resource Management** G 1½

Discussions of theory and research that serve as a foundation for the fields of human resources.  
Prereq: Enrollment in the Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**8302.01 Advanced Seminar: Selected issues in Human Resources Management I** G 1½

Advanced discussions of theory and research on human resource management.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**8302.02 Advanced Seminar: Selected issues in Human Resources Management II** G 1½

Additional advanced discussions of theory and research on human resource management.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**8401 Management Seminar: Seminar in Strategic Management** G 1½

An examination of the concepts, models, theories, and research underlying contemporary thinking on strategic management.  
Prereq: Enrollment in Fisher College of Business Ph.D program, of permission of instructor. Repeatable to a maximum of 6 cr hrs.

**8402.01 Advanced Seminar: Selected issues in Strategic Management I** G 1½

Advanced discussions of current theoretical developments and research in the business policy and strategic management field.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**8402.02 Advanced Seminar: Selected Issues in Strategic Management II** G 1½

Additional advanced discussions of current theoretical developments and research in the business policy and strategic management field.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**8502.01 Advanced Seminar: Competitive Strategy** G 1½

Advanced discussions of theory and research in Competitive Strategy.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

**8601 Management Seminar: Micro Foundations of Management** G 1½

An examination of the micro foundations, theories, and models underlying the field of management.  
Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.

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**8602 Management Seminar: Macro Foundations of Management** G 1½

An examination of the macro foundations, theories, and models underlying the field of management.  
Prereq: Enrollment in Fisher College of Business PhD program or permission of instructor.  
Repeatable to a maximum of 3 cr hrs.

**8610 Preparing Manuscripts for Management Journals** G 1½

Students will work on skills needed to translate research into publishable papers.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor.  
Repeatable to a maximum of 4.5 cr hrs.

**8611 Professional Development** G 1½

This is a PhD seminar on Professional Development designed to be taken over the regular 14-week sessions and made up of two parts, part one to be offered Autumn and part two during Spring semester; primarily for MHR PhD candidates.  
Prereq: Enrollment in the Fisher College of Business Ph.D program, or permission of instructor.

**8780 Introduction to Micro Research Methods in Management** G 1½

Introduction to research design and methodology as it relates to the study of micro organizational phenomena.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor.  
Repeatable to a maximum of 3 cr hrs.

**8781 Introduction to Macro Research Methods in Management** G 1½

Introduction to research design and methodology as it relates to the study of macro organizational phenomena.  
Prereq: Enrollment in Fisher College of Business Ph.D program, or permission of instructor.  
Repeatable to a maximum of 3 cr hrs.

**8999 Research in Management and Human Resources: Dissertation** G 1 - 12

Research for dissertation purposes only.  
Repeatable. This course is graded S/U.

### Business Admin: Management Sciences

**2320 Decision Sciences: Statistical Techniques** U 3

Examination of the use of statistical techniques in managerial decision-making processes; statistical inference, simple and multiple regression, time series.  
Prereq: Math 1131 (132), or 1151 (152); and Stat 1430 (133); and CSE 1113, or 2111 (200); and Econ 2001.01 (200). Prereq or Concur: Econ 2002.01 (201). Not open to students with credit for 330. This course is available for EM credit.

**2321 Business Analytics** U 1½

Examination of the use of business analytic models used in managerial decision making processes. Emphasis on formulation and interpretation of models; supported by spreadsheet based software.  
Prereq: Math 1131 (132), or 1151 (152), or equivalent; and CSE 1113, or 2111 (200); and Econ 2001.01 (200), or equivalent; and Econ 2002.01 (201), or equivalent. Not open to students with credit for 331.

**3130 Foundations of Operations Management** U 3

Introduction to operations & supply chain management to improve organizations; specifically analyzing, controlling & improving resources & processes to increase productivity, generate value-added output & meet business strategic & tactical goals.  
Prereq: Math 1116, 1130, 1148, or equiv, and Econ 2001.01, or equiv. Not open to students with credit for 3230. Not open to students enrolled in the BSBA degree program.

**3194 Group Studies** U 1 - 6

Group studies projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.

**3230 Introduction to Operations Management: Improving Competitiveness in Organizations** U 3

Introduction to operations and supply chain management to improve manufacturing and service organizations; analyzing, controlling and improving resources and processes to increase productivity, generate value-added output and meet business goals.  
Prereq: Econ 2001.01 (200), 2002.01 (201); and Stat 1430 (133) or equivalent. Not open to students with credit for 3130 (430) or 630, or to students enrolled in UUSS, UExp or PreBSBA-PR.

**3230H Introduction to Operations Management: Improving Competitiveness in Organizations** U 3

Introduction to operations and supply chain management to improve manufacturing and service organizations; analyzing, controlling and improving resources and processes to increase productivity, generate value-added output and meet business goals.  
Prereq: Honors standing in BusAdm Honors Cohort program. Not open to students with credit for 630H.

**3331 Business Analytics: Data Management and Descriptive Analysis** U 3

Understand how organizations can successfully collect, organize, manipulate, use and present data.  
Prereq: Econ 2001.01 and 2002.01 or equiv; and Math 1152 or 1161.01 or equiv; and CSE 2111 or equiv.

**3332 Business Analytics: Application of Predictive Analytics to Business Data** U 3

Build and test predictive models that move from data to parameter estimation.  
Prereq: Econ 2001.01 and 2002.01 or equiv, Stat 3202, and CSE 2111 or equiv.

**3333 Business Analytics: Applied Prescriptive Analytics** U 3

Moving from estimating model parameters, to making data-informed business decisions.  
Prereq: Econ 2001.01 or AEDEcon 2001; Econ 2002.01, Stat 3202, and CSE 2111.

**4193 Individual Studies** U 1 - 6

Individual study projects in selected areas in Management Sciences.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is progress graded (S/U).

**4194.31 Group Studies** U 1 - 6

Group studies projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.

**4194.32 Group Studies** U 1 - 6

Group studies projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.

**4194.33 Group Studies** U 1 - 6

Group studies projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.

**4232 Operations Planning and Control** U 3

Review of a Planning and Control System. Theoretical frameworks and utilization of techniques to execute strategic and tactical goals to increase productivity and effectiveness of forecasting, scheduling, and inventory and capacity resources.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212); and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 732.

**4233 Operations Management Analytics** U 3

A study of data and modeling tools used in operations management. Emphasis is spreadsheet and database applications.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212), and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 733.

**4234 Service Operations** U 3

Surveys a broad framework of key operations management challenges, while also focusing on a broad variety of different services via in-depth case studies.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212); and BusMHR 2291 or 2292 (BusADM 499.01).

**4237 International Operations Management** U 3

Current influences, practices and standards for structural and infrastructural decision making across national boundaries. Explores complexity of managing geographically dispersed operations with relationships between multiple entities.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212); and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 737.

**4239 Managing Process Improvement** U 3

Describes the basics of establishing and managing a Lean process in service, office and manufacturing operations. We will look at how we can add value in delivery of goods or services to the customer.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212), and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 739.

**4240 Management of Technology** U 3

Intended for a broad range of business careers in which management of technological operations is critical for an organization's competitive advantage. Topics include methods to design, measure and improve technologies.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212); and BusMHR 2291 or 2292 (BusADM 499.01).

**4242 Business Sports Analytics** U 3

Analytical techniques and quantitative methods are on the rise in many areas of industry, and, of late, have made their foray into the sports realm. Skills such as critical thinking, mathematical modeling, statistical analysis, predictive analytics and optimization are crucial in the data-centric realm. The class seeks to develop and refine these skills in the business application area of sports.  
Prereq: Stat 3202, or permission of instructor.

**4250 Six Sigma Principles** U 3

Designed to familiarize students with the Six Sigma process improvement methodology and to provide them an opportunity to practice using Six Sigma Black Belt tools.  
Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212); and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 710.

**4251 Six Sigma Projects** U 3

Six Sigma Projects class.  
Prereq: 4250 (710). Not open to students with credit for 711.

<b>4253</b>	<b>Sustainable Operations</b>	<b>U</b>	<b>3</b>
There is increasing pressure on businesses to pay more attention to the environmental consequences of the raw materials they source, processes they deploy, and the products and services they offer. Recognizing that operations are at the core of any sustainable enterprise, this course addresses issues related to sustainable operations in three modules. Prereq: 2320, 2321, 3230, AcctMIS 2200, 2300, and BusMHR 2292.			
<b>4261</b>	<b>Purchasing and Supply Chain Management</b>	<b>U</b>	<b>3</b>
Designed to explore the industrial-institutional purchasing cycle for operating supplies, raw materials, components and capital equipment within the context of the Integrated Supply Chain Management Organizational Concept. Prereq: 2320 (330), 2321 (331), 3230 (630), and AcctMIS 2200 (211), 2300 (212); and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 735.			
<b>4262</b>	<b>Purchasing Strategy</b>	<b>U</b>	<b>3</b>
Strategic purchasing is a methodology used in many businesses to realize the greatest amount of benefit to the company while still effectively managing the costs associated with the acquisition of raw materials and operational components. Prereq: 2320 (330), 2321 (331), 3230 (630), AcctMIS 2200 (211), 2300 (212) and BusMHR 2291 or 2292 (BudAdm 499.01). Not open to students with credit for 736.			
<b>4263</b>	<b>Strategic Global Sourcing</b>	<b>U</b>	<b>3</b>
This course focuses on the strategic design and management of the global supply base. The course focuses on identifying and understanding risks and uncertainties related to make-buy, location, and on-going supplier management. Beyond that, it focuses on cross-functional decision-making under risk and uncertainty in this context. Prereq: 2320 (330), 2321 (331), 3230 (630), AcctMIS 2200 (211), and 2300 (212); and BusMHR 2291, 2292, or BusADM 499.01.			
<b>4998</b>	<b>Undergraduate Research in Management Sciences</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate Research in Management Sciences for non-honors students. Prereq: BusAdm 2291 (499), and Jr standing, and permission of instructor. This course is progress graded.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 6</b>
Special topics research in Management Sciences: Research evaluated through papers, thesis, and/or special examinations. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.			
<b>6220</b>	<b>Data Analysis for Managers</b>	<b>G</b>	<b>3</b>
Introduction to data analysis and statistics for business. Emphasis on achieving an application-oriented understanding of statistical inference and regression analysis and their use in decision making. Prereq: Enrollment in MHRM or SMB-Marketing Program. Not open to students with credit for 870.			
<b>6221</b>	<b>Data Analysis for Financial Management Part I</b>	<b>G</b>	<b>1½</b>
Introduction to data analysis and statistics for business. Emphasis on achieving an application-oriented understanding of statistical inference and regression analysis and their use in decision making. Part I of 2 course sequence. Prereq: Enrollment in MBOE or SMB-Finance Program Course. Not open to students with credit for 870. This course is progress graded.			
<b>6222</b>	<b>Data Analysis for Financial Management Part II</b>	<b>G</b>	<b>1½</b>
Introduction to data analysis and statistics for business. Emphasis on achieving an application-oriented understanding of statistical inference and regression analysis and their use in decision making. Part 2 of 2 course sequence. Prereq: Enrollment in MBOE or SMB-Finance Program Course. Concur: 6221. Not open to students with credit for 870.			
<b>6400</b>	<b>Statistics and Data Analysis for Managers</b>	<b>G</b>	<b>3</b>
Students will learn how to work with data, formulate questions, and most importantly, learn comprehensive problem solving techniques to extract and explain pertinent information from data. The course will track the problem solving process from problem formulation to data acquisition/cleaning to data analysis and conclusion to communication of the results. Prereq: Enrollment in the SMB-A program, or permission of instructor.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>½ - 6</b>
Individual study projects in selected areas in Management Sciences. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is progress graded (S/U).			
<b>7194.31</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 6</b>
Group studies projects. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>7194.32</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 6</b>
Group studies projects. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>7194.33</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 6</b>
Group studies projects. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			

<b>7201</b>	<b>Operational Excellence in a Service Environment</b>	<b>G</b>	<b>3</b>
Surveys a broad framework of key principles of service operations, detailing how they can be leveraged to devise a successful service strategy. Starts by covering building blocks of service operations and examines the application of these tools across various offline and online services. Prereq: MBA 6233, or permission of instructor.			
<b>7202</b>	<b>The Business of Healthcare</b>	<b>G</b>	<b>1½</b>
Focuses on the evolving and competitive issues facing the industry today, giving students the tools to adapt and excel under demanding circumstances. Students work to become effective leaders by gaining in-depth knowledge of business concepts, analytical skills and a broad understanding of health-care industry dynamics. Prereq: Enrollment in MBA or WP MBA program. Not open to students with credit for 814.			
<b>7203</b>	<b>Service and Healthcare Business Operations</b>	<b>G</b>	<b>1½</b>
Examines how techniques including lean, six sigma and value stream mapping are increasingly being utilized in service businesses, as well as to improve both flow (Cost) and patient safety outcomes in medicine. Prereq: Enrollment in MBA or WP MBA program.			
<b>7205</b>	<b>Healthcare and Service Analytics</b>	<b>G</b>	<b>3</b>
This course develops the quantitative thinking and skills needed to identify opportunities, develop models, and interpret results related to operational decision-making in service industries. Students will gain a practical understanding of the essential statistics needed for data analytics while working on a group project. Material will be presented in a hands-on manner using computer-based tools. Prereq: MBA 6273, or permission of instructor.			
<b>7222</b>	<b>Simulation, Risk Analysis, and Decision Making</b>	<b>G</b>	<b>1½</b>
Focuses on analyzing management decisions that involve uncertainty, risk and complexity. Students will explore the Monte Carlo simulation, forecasting and decision tree analytical methods with a strong emphasis on their proper use and application. Prereq: MBA 6271. Not open to students with credit for 855.			
<b>7223</b>	<b>Project Management</b>	<b>G</b>	<b>1½ - 3</b>
Introduces challenges senior managers face in companies that run multiple projects with a focus on overall project portfolio management, project selection, resource allocation between projects & organizational team design. Students identify their strengths & weaknesses in projects with a creative problem-solving exercise & experience real-life applications with visits from local project managers. Prereq: Enrollment in Fisher College of Business Grad program, or permission of instructor. Repeatable to a maximum of 3 cr hrs.			
<b>7231</b>	<b>Manufacturing Planning and Control for Supply Chain Management</b>	<b>G</b>	<b>1½</b>
Emphasizes the overall structure of the planning and control function in managing operations, a critical link for the planning activities in many areas of a business. Topics covered include forecasting, sales and operations planning (S&OP), master production scheduling (MPS), material requirements planning (MRP), capacity management, inventory management, and just-in-time (JIT) techniques. Prereq: Enrollment in MBA or WP MBA program. Not open to students with credit for 835.			
<b>7232</b>	<b>Supply Chain Analytics: Matching Supply with Demand</b>	<b>G</b>	<b>1½</b>
Explores how firms can better organize their operations so they more effectively align supply with demand for products and services. Students will learn how to assess supply flexibility and manage demand for a fixed supply and explore topics including flexible capacity management, short-life-cycle forecasting, quick response, revenue management, buy-back contracts and revenue-sharing contracts. Prereq: MBA 6231 and 6232, or 6233; and enrollment in MBA or WP MBA. Not open to students with credit for 832.			
<b>7232.01</b>	<b>Supply Chain Analytics: Matching Supply with Demand</b>	<b>G</b>	<b>1½</b>
Explores how firms can better organize their operations so they more effectively align supply with demand for products and services. Students will learn how to assess supply flexibility and manage demand for a fixed supply and explore topics including flexible capacity management, short-life-cycle forecasting, quick response, revenue management, buy-back contracts and revenue-sharing contracts. Prereq: MBA (6231 and 6232) or 6233, and enrollment in MBA or WP MBA. Not open to students with credit for 832.			
<b>7232.02</b>	<b>Supply Chain Analytics: Matching Supply with Demand</b>	<b>G</b>	<b>1½</b>
Explores how firms can better organize their operations so they more effectively align supply with demand for products and services. Students will learn how to assess supply flexibility and manage demand for a fixed supply and explore topics including flexible capacity management, short-life-cycle forecasting, quick response, revenue management, buy-back contracts and revenue-sharing contracts. Prereq: MBA (6231 and 6232) or 6233, enrollment in MBA or WP MBA. Concur: BusFin 7215.02. Not open to students with credit for 7232 or 7232.01.			
<b>7233</b>	<b>Strategic Global Sourcing</b>	<b>G</b>	<b>3</b>
Focuses on major decisions related to global sourcing, starting with ownership (make-buy) and location (offshore-onshore). Among other topics, students explore fundamental trade-offs in sourcing organization, such as centralizing or decentralizing. Prereq: MBA 6231 and 6232, and enrollment in MBA, WP MBA, or MBLE program. Not open to students with credit for 837.			

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**7235 Health Care Operations Management** G 3

As healthcare organizations face challenges such as rising costs & complexity, as well as increasing demand for limited resources, significant opportunity exists to better manage their operations. This course applies operations management tools to examine the healthcare value chain & analyze healthcare organizations using qualitative & quantitative principles & develop solutions to common problems.

Prereq: Enrollment in MBA or WP MBA program.

**7241 Lean Enterprise Leadership** G 1½

Introduces the skills and discipline needed to lead and learn in a continuous improvement environment in a hands-on, participative manner. Students who complete the class can immediately contribute to an organization's efforts in continuous improvement, whose principles are used by many leading organizations in all sectors to outpace competitors year after year.

Prereq: Enrollment in MBA, WP MBA, or MBLE program. Not open to students with credit for 840.

**7242 Six Sigma Principles** G 3

Familiarizes students with the Six Sigma process improvement methodology by practicing with its tools. Supplemented with an online textbook from Moresteam.com, project simulation that runs throughout the semester and Minitab statistical software.

Prereq: MBA 6271 (870), or enrollment in MBLE program. Not open to students with credit for 810.

**7244 Six Sigma Projects** G 3

Teams of students apply the Six Sigma body of knowledge through a real-world project at an area company. Projects will follow the DMAIC body of knowledge as students and coaches work through its tollgates to achieve process improvement.

Prereq: 7242 or 7243. Not open to students with credit for 811.

**7247 Artificial Intelligence and Machine Learning for Business: Decisions from Data** G 3

Provides business students with an overview of artificial intelligence, focusing on modern machine learning methods and applications. We study and implement supervised and unsupervised machine learning systems using software and data from practical, business contexts. Upon completion, participants will be able to identify and capitalize on opportunities to create value with artificial intelligence.

Prereq: MBA 6273 or equivalent.

**7250 Data Management for Analytics Professionals** G 3

Business Analytics is the process of transforming raw data into insights and predictions. This course is on the fundamentals of data management-the art and science of collecting, organizing, cleaning, and manipulating raw data in a variety of formats and from multiple sources, and being able to do it efficiently and at scale using R.

Prereq: Enrollment in the SMB-A program, or permission of instructor.

**7251 Managing Product and Process Innovation** G 1½

An essential element of any business model is the design and the delivery of services and goods. Many organizations are able to perform this function effectively in the short-term. But only a few organizations demonstrate sustained performance over an extended period of time. We refer to these organizations as pioneers in business model innovation.

Prereq: Enrollment in MBA, WP MBA, or MAcc program. Not open to students with credit for 834.

**7253 Sustainable Operations** G 1½

Reviews several sustainable operations strategy models and examines different ways of adopting eco-efficiency principles into business operations through waste reduction and design for recovery. Highlights factors that promote these efforts, such as environmental laws and product returns.

Prereq: Enrollment in MBA or WP MBA program.

**7256 Tools for Data Analysis** G 1½

This course is designed to introduce students to commonly used software programs in data science and improve students' problem solving skills and logical thought processes. Students will be exposed to R, SAS, and SPSS.

Prereq: MBA 6271 or 6273.

**7257 Data Analysis and Visualization** G 3

Designed to equip students with competencies in translating real-world problems into forms that such technologies can assist with, to portray/visualize these translations in ways that enhance the understanding of the dynamics of these problems, to structure mechanisms that derive suggested solutions, to clearly convey the justification and practicality of final solutions to others.

Prereq: Enrollment in the MBA or WP MBA program; or permission of instructor.

**7258 Sports Analytics for Business** G 1½

Analytical techniques and quantitative methods are on the rise in many areas of industry, and, of late, have made their foray into the sports realm. Skills such as critical thinking, mathematical modeling, statistical analysis, predictive analytics and optimization are crucial in the data-centric realm. The class seeks to develop and refine these skills in the business application area of sports.

Prereq: MBA 6271, and enrollment in MBA or WP MBA program.

**7259 Operations and Technology Strategy** G 1½

Develop a unifying framework for analyzing strategic issues in operations. Use theory and cases to illustrate and explore the concept of operations and technology strategy. Covers strategic decisions on technology, facilities, vertical integration, human resources, global operations and social issues.

Prereq: Enrollment in MBA, WP MBA, or MAcc program. Not open to students with credit for 834.

**7260 Applied Data Analytics Projects** G 3

Successful applications of data analysis in an organizational context require technical and managerial capabilities. The course provides the opportunity to develop your abilities in these areas through an analytics consulting project with a local firm or non-profit organization.

Prereq: 7256 or MBA 6273, and enrollment in MBA, WP MBA, or SMB-A; or permission of instructor.

**7261 MBOE Lean Enterprise Leadership** G 3

Introduces three important methods: Hoshin Kanri (or policy deployment); Value Stream Mapping, and A3 storyboards. We will also begin defining projects and use the methods covered to analyze and document the value streams.

Prereq: Enrollment in MBOE. Not open to students with credit for 840.02.

**7262 MBOE Capstone/Cornerstone Project** G 1½

Capstone Project is a supervised practical project executed by the student with the help of a team in the student's own workplace. A faculty coach supervises and guides the effort and a company sponsor supports the effort of the student team.

Prereq: Enrollment in MBOE. Not open to students with credit for 841. Repeatable to a maximum of 6 or hrs.

**7263 MBOE Value Stream Management** G 3

Presents students with the state-of-the-art strategic and operational approaches to planning and implementing effective change across an enterprise. Students will be taught to identify and analyze concerns and implement solutions.

Prereq: Enrollment in MBOE. Not open to students with credit for 842.

**7264 MBOE Stabilizing Operations** G 3

The objective of this course is to present students with the state-of-the-art tools for stabilizing operations and maintaining stability. Students will be taught to identify and analyze strategic core enterprise-wide concerns and implement solutions.

Prereq: Enrollment in MBOE. Not open to students with credit for 843.

**7265 MBOE Creating and Managing Flow** G 3

This class will cover flow in both service and manufacturing environments. We will consider questions such as how to achieve patient flow in a hospital; and whether Materials Requirements Planning systems and flow processes can co-exist.

Prereq: Enrollment in MBOE. Not open to students with credit for 845.

**7266 MBOE Leading Operations** G 3

The explicit link between problem solving and lean activities such as policy management, standardized work, visual management, human resources management and "go see" (gemba) activities are explained.

Prereq: Enrollment in MBOE. Not open to students with credit for 844.

**7267 MBOE Six Sigma** G 3

Designed to familiarize students with the Six Sigma process improvement methodology and to provide them an opportunity to practice using Six Sigma Black Belt tools.

Prereq: Enrollment in MBOE. Not open to students with credit for 810. This course is progress graded.

**7268 MBOE Six Sigma Projects** G 3

Six Sigma Project is a supervised DMAIC project executed by the student and with the help of a team in the student's own workplace. A faculty coach supervises and guides the effort and a company sponsor supports the effort.

Prereq: Enrollment in MBOE. Not open to students with credit for 811.

**7269 MBOE Change & Innovation for Ops Excellence** G 3

Course is designed to familiarize students with the application of lean principles in three additional key areas of the organization. The total lean transformation requires a change in the way we lead throughout the organization.

Prereq: Enrollment in MBOE. Not open to students with credit for 847.

**7270 MBOE Managing the Extended Value Stream** G 3

A focus on working across functions, companies and cultures and managing the Extended Value Stream.

Prereq: Enrollment in MBOE. Not open to students with credit for 848.

**7331 Descriptive Analytics and Visualization** G 3

Visualization is an effective way to communicate the underlying patterns of data. Students will learn different types of visualization and how to compose and combine them using R. This course covers a wide range of visualization from simple to complex, static to interactive, and familiar to exotic. Students will also be exposed to how to describe and visualize unstructured data such as texts.

Prereq: 6400, 7250, enrollment in SMB-Analytics program, or permission of instructor.

## Business Admin: Management Sciences 75

<b>7332</b>	<b>Predictive Analytics</b>	<b>G</b>	<b>3</b>
Business Analytics is the process of transforming raw data into insights and predictions. This course provides an introduction to core predictive analytics concepts and techniques as well as hands-on experience in applying these techniques to practical real-world business problems. Prereq: 7250, enrollment in SMB-Analytics program, or permission of instructor.			
<b>7334</b>	<b>Sports Analytics</b>	<b>G</b>	<b>1½</b>
Analytical techniques and quantitative methods are on the rise in many areas of industry, and, of late, have entered the sports realm. Students will expand their critical thinking skills, explore the current state of sports analytics, summarize data creatively, improve data-based decision making, and optimize output in real-world situations as well as improve presentation skills to the non-quant. Prereq: Enrollment in SMB-Analytics program, or permission of instructor.			
<b>7701</b>	<b>Managing Business Operations for Health Sciences</b>	<b>G</b>	<b>1½ - 3½</b>
Many firms have demonstrated that operations management can be an effective competitive weapon. In conjunction with well-conceived marketing and financial plans, these firms have made major penetrations into markets worldwide. This course is designed to address the key operations issues in service and manufacturing organizations that have strategic as well as tactical implications. Prereq: Enrollment in the Graduate Business Minor in Health Sciences.			
<b>7717</b>	<b>Capstone: Healthcare Business Solution Teams</b>	<b>G</b>	<b>1½ - 3½</b>
This class focuses on diagnosing and solving real-world problems in life science and healthcare business practices. Prereq: 7701, BusFin 7702, and BusMHR 7703.			
<b>7800</b>	<b>Advanced Topics in Management Sciences for EMBA</b>	<b>G</b>	<b>1½ - 3</b>
Advanced Topics in Management Sciences for students in the Executive MBA Program. Prereq: Enrollment in EMBA program. Repeatable to a maximum of 15 cr hrs or 7 completions.			
<b>7999</b>	<b>Research in Management Sciences: Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 4 completions. This course is progress graded (S/U).			
<b>8230</b>	<b>Strategic Management of Operations I</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: critical analysis of research studies in different areas of operations management; linking operations to the corporate strategy, dimensions of operations strategy. Prereq: Enrollment in BusAdm PhD program.			
<b>8231</b>	<b>Strategic Management of Operations II</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: critical analysis of research in vertical integration decisions, and measuring operational effectiveness, interorganizational collaboration. Prereq: Enrollment in BusAdm PhD program.			
<b>8232</b>	<b>Operations Planning &amp; Control I</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: critical analysis of research in fundamental and classical operations management and operations research topics. Prereq: Enrollment in BusAdm PhD program.			
<b>8233</b>	<b>Operations Planning &amp; Control II</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: Critical analysis of research studies in inventory management, warehouse and facility location, vehicle routing, MRP and forecasting. Prereq: Enrollment in BusAdm PhD program.			
<b>8234</b>	<b>Innovation Management</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: Critical analysis of research in portfolio management, NPD, managing NPD teams, distributed and platform innovation, and innovation implementation. Prereq: Enrollment in BusAdm PhD program.			
<b>8235</b>	<b>Fundamentals of Operational Excellence</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: Critical analysis of research in quality management, lean, six sigma, designing operations to support and sustain innovation, integrating technology into operations. Prereq: Enrollment in BusAdm PhD program.			
<b>8236</b>	<b>Service Operations I</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: critical analysis of research in designing effective service delivery models, service quality, measuring service performance, service profit chains. Prereq: Enrollment in BusAdm PhD program.			
<b>8237</b>	<b>Service Operations II</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: Critical analysis of research in healthcare operations, retail operations, and IT service operations, sharing economies. Prereq: Enrollment in BusAdm PhD program.			
<b>8238</b>	<b>Supply Chain Management I</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: Critical analysis of research in supply chain essentials, design, and management. Prereq: Enrollment in BusAdm PhD program.			
<b>8239</b>	<b>Supply Chain Management II</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: critical analysis of research in buyer-supplier contracts, matching supply and demand, behavioral issues in supply chain. Prereq: Enrollment in BusAdm PhD program.			

<b>8240</b>	<b>Operations Method I</b>	<b>G</b>	<b>3</b>
Doctoral research seminar: critical analysis of philosophy of science, qualitative/case study research, survey-based research, research employing secondary data sources. Prereq: Enrollment in BusAdm PhD program.			
<b>8241</b>	<b>Operations Method II</b>	<b>G</b>	<b>3</b>
Doctoral research seminar: critical analysis of analytical research methods and dynamic programming. Prereq: Enrollment in BusAdm PhD program.			
<b>8242</b>	<b>Operations Management Seminar Speaker Series</b>	<b>G</b>	<b>1½</b>
Doctoral research seminar: Critical analysis of research in different areas of behavioral operations; practice in developing research questions and formulating hypotheses; presentation of original research of publishable quality. Prereq: Enrollment in BusAdm PhD program. Repeatable to a maximum of 3 cr hrs.			
<b>8999</b>	<b>Research in Management Sciences: Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 48 cr hrs or 8 completions. This course is progress graded (S/U).			

## Business Admin: Marketing & Logistics

<b>2223</b>	<b>Professional Sales Readiness</b>	<b>U</b>	<b>1½</b>
Learn the consultative process for problem-solving and persuasion that is essential for sales as well as success in any field. Open to all majors. This experiential, instructor-led online course can be accessed from anywhere with high-speed internet. In addition to solid framework for sales success, it includes a sales aptitude assessment, personal branding for job and resume/cover letter writing.			
<b>3150</b>	<b>Foundations of Marketing</b>	<b>U</b>	<b>3</b>
Presents the concepts, framework and tools of market-based management. Topics include the marketing concept and the role that product, price, promotion and distribution play in marketing strategy and implementation. Prereq: Math 1116, 1130, 1148, or equiv, and Econ 2001.01, or equiv. Not open to students with credit for 3250. Not open to students in BSBA.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 6</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 6 completions.			
<b>3241</b>	<b>Introduction to Entrepreneurial Marketing</b>	<b>U</b>	<b>3</b>
Focuses on marketing concepts of entrepreneurs leading growth-oriented companies. Typically these are small, young companies with ambitions to become major enterprises. Prereq: Econ 2001.01 (200) or AEDEcon 200, or equiv, and Math 1130 (130), or equiv. Not open to students with credit for 4241 or 490.			
<b>3250</b>	<b>Principles of Marketing</b>	<b>U</b>	<b>3</b>
Presents the concepts, framework and tools of market-based management to deliver superior customer satisfaction, value and profitability. The focus of the course is on identifying, creating, delivering and measuring value creation. Prereq: Econ 2001.01 and 2002.01. Not open to students with credit for 3150 (650) or 450 or to students enrolled in UUSS, UExp or PreBSBA-PR.			
<b>3380</b>	<b>Logistics Management</b>	<b>U</b>	<b>1½</b>
Concepts and methods used to plan and manage logistics activities in a business environment. Understanding of the components of logistics management and tradeoffs required to manage the integrated flow of goods through the supply chain. Prereq: Econ 2001.01 (200), or equivalent; and 2002.01 (201), or equivalent. Not open to students with credit for 780 or to students enrolled in UUSS, UExp, or PreBSBA-PR.			
<b>3381</b>	<b>Logistics Management for EEDS</b>	<b>U</b>	<b>1½</b>
Provides an overview and working knowledge of logistics for students majoring in Environment, Economy, Development, and Sustainability. Provides a survey of key logistics concepts along with an understanding of how logistics applies to the customer lifecycle, how logistics models are developed, logistics and risk management and continuous improvement. Prereq: Jr standing or above, and enrollment in EEDS program. Not open to students with credit for 3380, or students in BSBA.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 4</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor. This course is graded S/U.			
<b>4194.51</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor.			
<b>4194.52</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor.			
<b>4194.53</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor.			

## 76 Business Admin: Marketing & Logistics

**4201 Consumer Behavior** U 3

Examines how and why people behave as consumers. Its goals are to provide an understanding of consumer behavior and to provide experience in the application of this knowledge to marketing management and social policy decision making.  
Prereq: 3250 (650), and AcctMIS 2200 (211), 2300 (212), and BusMGT 2320 (330), 2321 (331); and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 750.

**4202 Marketing Research** U 3

Course examines the role of marketing research in the formulation and solution of marketing problems. Emphasis is placed on problem formulation, research design, data collection methods (instruments, sampling, operations) and analysis techniques.  
Prereq: 3250 (650), and AcctMIS 2200 (211), 2300 (212), and BusMGT 2320 (330), 2321 (331); and BusMHR 2291 or 2292 (BusADM 499.01). Not open to students with credit for 758.

**4203 Marketing Strategy** U 1½

This case course focuses on strategic planning examining how environmental factors affect long-term marketing strategies, how firms adapt to opportunities and threats in dynamic environments and how to assess development of competitive advantages.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 752.

**4204 Marketing Projects** U 3

In this advanced marketing course students will act as a consulting team and work with a client firm on a marketing problem, produce a report and present their work.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv; or enrollment in regional campus General Business Program.

**4210 Advanced Market Research and Analytics** U 1½ - 3

Applications of modern marketing research procedures to variety of marketing problems. Emphasis placed on survey design and sampling, attitude measurement, perceptual mapping, market segmentation, conjoint analysis, and measurement of customer satisfaction.  
Prereq: 4201, 4202, and BusMHR 2292, or equiv. Not open to students with credit for BusMgt 3333.

**4211 Market Analysis, Development & Forecasting** U 1½

Before a new product can be launched, or new customers targeted a firm must assess the size and demand for an offering. Methods used to forecast consumer behavior, market share, and sales (for production and inventory control) will be examined.  
Prereq: 4201 (750) or 4202 (758), or equiv, and BusMHR 2292 (BusAdm 499.01).

**4212 Customer Relationship Management** U 1½

Examines the theories of methods used to identify profitable customers, understand their needs and wants, and how to build a bond with them by developing customer-centric products and services directed toward providing customer value.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv.

**4220 Sales Management** U 1½

Provides an overview of the sales management process. It covers topics, such as sales force planning, budgeting, recruiting, selection, training, compensation, supervision, deployment and control.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 759.

**4221 Professional Selling** U 1½

Provides a practical, hands-on understanding of the professional selling process. Students will learn how companies use personal selling to enhance their business and develop the skills necessary to be an effective account manager.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 761.

**4222 Services Marketing** U 1½

Examines customer touch point analysis, brand consistency and integrating customer information across the organization. Issues addressed: understanding service failure and recovery, management of service employees and the establishment of a service culture.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 760.

**4223 Foundations of Sales and Sales Management** U 3

Examines the basics of business-to-business professional selling and provides core sales management building blocks. Emphasizes the importance of building relationships and adding substantial value to business customers while providing a theoretical and practical overview of the selling and buying process, salesforce structure, and sales tools.  
Prereq: 4201, 4202, and BusMHR 2292, or equiv. Not open to students with credit for 4220 and 4221.

**4230 Advertising Management** U 1½

Provides the tools needed to develop, manage and evaluate an integrated marketing communication campaign. Communication fundamentals, goal setting, creative and media strategy, campaign development and measurement issues are explored.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 755.

**4231 Promotional Strategy** U 1½

Examines how marketers utilize promotional campaigns to enhance marketing efforts. The tools needed to design, evaluate and analyze effectiveness of promotions, sponsorships, events and branded entertainment programs are explored.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 755.

**4232 Digital Marketing** U 3

Examines the how marketers can utilize emerging media (electronic, online, social and mobile) to promote customer engagement, enhance their traditional marketing mix, and measure the effectiveness of marketing efforts.  
Prereq: 4201, 4202, and BusMHR 2292, or equiv.

**4233 Advertising and Promotional Strategy** U 3

Provides the tools needed to develop, manage and evaluate an integrated marketing communication campaign. Examines how marketers utilize advertising and promotional programs to enhance marketing efforts. Communication fundamentals, goal setting, creative and media strategy, campaign development and measurement issues, and pricing implications are explored.  
Prereq: 4201, 4202, and BusMHR 2292, or equiv. Not open to students with credit for 4230 and 4231.

**4240 New Product Management** U 1½

Examines strategies for development of successful new products. The five modules of the process (i.e., opportunity identification, concept generation, concept evaluation, product design and development, and launch) will be covered.  
Prereq: 4201, 4202, and BusMHR 2292, or equiv.

**4241 Entrepreneurial Marketing** U 1½

Examines best practices in Entrepreneurial Marketing including analysis of marketing opportunities, identification of target audience, development of marketing strategy, brand positioning and an integrated marketing plan.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01).

**4251 Retail Management** U 1½

Examines contemporary distribution channels; focus on strategic decisions for successful retail practices; examine industry trends to highlight how companies design and manage retail and e-tail environments.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 753.

**4252 Social Marketing & Public Policy** U 1½

Examines social marketing, which seeks to benefit a targeted population and the general society rather than a marketer or firm. Non-profit, cause marketing, corporate social responsibility, and sustainability issues are explored.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv.

**4253 Global Marketing** U 1½

Examines the theory of marketing across national borders, as well as marketing and market research within different foreign environments, including the development of marketing strategies by the international company. Marketing majors only.  
Prereq: 4201 (750), 4202 (758), and BusMHR 2292 (BusAdm 499.01), or equiv. Not open to students with credit for 4254 (757).

**4254 International Marketing** U 3

For International Business majors only. Examines theory and practice of marketing across national borders, marketing and market research within different foreign environments, and development of marketing strategies by the international company. Does not count as elective credit for the Marketing major.  
Prereq: 3250 (650) and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 4253 (757).

**4255 Sustainability Marketing for Consumers, Firms & Society** U 3

This course is designed to provide students with the knowledge to enhance sustainable behaviors in firms, among consumers and in society at large. In doing so, this course will include frameworks for understanding how to influence sustainable practices, consumer response to sustainability, and sustainability and marketing communication in the marketplace.  
Prereq: 3250 or AEDEcon 3102.

**4380 Advanced Logistics Management** U 1½

Advanced coverage of the concepts and methods used to plan and manage logistics activities in a business environment; in-depth understanding of the components of logistics management and tradeoffs required to manage the integrated flow of goods.  
Prereq: 3380, and AcctMIS 2200 (211), 2300 (212), and BusMGT 2320 (330), 2321 (331); and BusMHR 2291 or 2292 (BusADM 499.01).

**4382 Logistics Analytics** U 3

Will equip student with the tools and skills necessary to recognize, analyze and solve significant problems in the operation of a logistics system through the application of techniques using spreadsheet analysis, optimization and simulation.  
Prereq: 4380, BusMgt 2320 (330), 2321 (331), and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 781.

<b>4383</b>	<b>Supply Chain Management</b>	<b>U</b>	<b>1½</b>
Focuses on distinction between logistics and supply chain management; cross-functional integration of key business processes within the firm and across network of firms that comprise supply-chain; framework for supply chain management. Prereq: 3380, and AcctMIS 2200, 2300, and BusMgt 2320, 2321; and BusMHR 2291 or 2292.			
<b>4385</b>	<b>Building a Sustainable Supply Chain</b>	<b>U</b>	<b>1½</b>
Focuses on understanding how to measure and impact the long-term sustainability of a company's supply chain operations; learn practices for reducing carbon footprints and creating a more resilient supply chain, while meeting financial goals. Prereq: 3380 or 3381; and AcctMIS 2200, 2300, and BusMGT 2320, 2321; and BusMHR 2291 or 2292.			
<b>4386</b>	<b>Logistics Technology - Fundamentals</b>	<b>U</b>	<b>1½</b>
Focus on the operational use of logistics software technologies such as transportation management systems, warehouse management systems, and inventory management systems. Course taught in a lab environment with tools for lectures, exercises and HW. Prereq: 3380, and AcctMIS 2200 and 2300, and BusMgt 2320 and 2321; and BusMHR 2291 or 2292.			
<b>4387</b>	<b>Lean Logistics</b>	<b>U</b>	<b>1½</b>
Examines using Lean tools and insights to remove bottlenecks and impediments to efficient, effective logistics, resulting in reduced logistics costs and improved service. Prereq: 4380 and BusMHR 2292 (BusAdm 499.01).			
<b>4388</b>	<b>Warehouse Operations</b>	<b>U</b>	<b>1½</b>
Study of general warehouse operations, focusing on facility layout, financial analysis, labor relations, warehouse management systems, productivity improvement and measurement; impact of corporate and industry strategies on warehouse operations. Prereq: 3380, and AcctMIS 2200 (211), 2300 (212), and BusMGT 2320 (330), 2321 (331); and BusMHR 2291 or 2292 (BusADM 499.01).			
<b>4389</b>	<b>Logistics Technology - ERP Systems</b>	<b>U</b>	<b>1½</b>
Introduction to enterprise resource planning (ERP) systems with emphasis on understanding the differences between the major ERP systems on the market and using an ERP system to complete exercises for common business functions.			
<b>4998</b>	<b>Undergraduate Research in Marketing &amp; Logistics</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate Research in Marketing & Logistics for non-honors students. Prereq: BusAdm 2291 or 499, and Jr standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>½ - 4</b>
Special Topics Research in Marketing and/or Logistics. Research evaluated through papers, thesis, and/or special examinations. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is progress graded.			
<b>5381</b>	<b>Transportation Management</b>	<b>U G</b>	<b>3</b>
Issues and strategies in transportation management and policy; emphasis on study of modes of transportation, intermodal and international transportation, capacity management, competitive relations between modes; aspects of carrier management. Prereq: 3380, and AcctMIS 2200 (211), 2300 (212), and BusMGT 2320 (330), 2321 (331); and BusMHR 2291, or 2292 (BusADM 499.01), or enrollment in MBLE. Not open to students with credit for 784.			
<b>5389</b>	<b>Logistics Decision Making</b>	<b>U G</b>	<b>3</b>
Analysis of logistics decision making in the context of the business environment; application of the solution methods needed to meet business goals. Capstone designed to expand on previous courses and prepare students to implement logistics concepts. Prereq: 4380. Prereq or concur: 4382 and BusMHR 2292 (BusAdm 499.01). Not open to students with credit for 782.			
<b>6243</b>	<b>Managerial Economics</b>	<b>G</b>	<b>3</b>
Provides a framework for analyzing managerial decisions and problems using selected topics from fundamental microeconomic theory. This framework will be used in conjunction with strategy, case studies, ethical considerations, and combined professional experience to improve managerial decision-making. Prereq: Enrollment in the SMB-A program, or permission of instructor.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>½ - 4</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 6 completions. This course is graded S/U.			
<b>7194.51</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor.			
<b>7194.52</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Topics in Marketing and Logistics. Prereq: Enrollment in MBA program, WP MBA program, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 6 completions.			

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<b>7201</b>	<b>Marketing Research and Analytics</b>	<b>G</b>	<b>1½</b>
Exploration of issues related to data analysis for marketing decisions: costs/benefits of analysis in aggregate; difference between descriptive and structural models; complexities of imperfect information. Prereq: MBA 6252 or 6253. Not open to students with credit for 847.			
<b>7202</b>	<b>Consumer Behavior</b>	<b>G</b>	<b>1½</b>
Development of the consumer decision process and its application to marketing strategy decisions. Prereq: 6250 or MBA 6252 or 6253.			
<b>7203</b>	<b>Advertising Strategy and Management</b>	<b>G</b>	<b>1½</b>
The advertising process, partnership with an ad agency, uncovering consumer insight to drive advertising strategy, formulating and guiding advertising strategy, media planning concepts, and measuring advertising effectiveness. Prereq: 6250 or MBA 6252 (840). Not open to students with credit for 846.			
<b>7204.01</b>	<b>Customer Management, Pricing, and Analytics II</b>	<b>G</b>	<b>1½</b>
Tools for predicting the effects of product reformulation. A choice simulator is constructed to investigate the source of volume and effect of targeted marketing actions. A comparison to, and the integration of, marketplace data is examined. Prereq: MBA 6250, 6252, or 6253. Not open to students with credit for 7204.02.			
<b>7204.02</b>	<b>Customer Management, Pricing, and Analytics II</b>	<b>G</b>	<b>1½</b>
Tools for predicting the effects of product reformulation. A choice simulator is constructed to investigate the source of volume and effect of targeted marketing actions. A comparison to, and the integration of, marketplace data is examined. Prereq: MBA 6250, 6252, or 6253. Concur: BusML 7219.02. Not open to students with credit for 7204.01.			
<b>7205</b>	<b>Services Marketing</b>	<b>G</b>	<b>1½</b>
Focus on equipping students to become more effective leaders of service organizations as well as more enlightened customers of service firms. Prereq: MBA 6252 (840).			
<b>7206</b>	<b>Brand Management</b>	<b>G</b>	<b>1½</b>
The brand management process, strategic targeting, constructing compelling brand platforms, brand portfolio management, building and sustaining brand equity, brand equity metrics and strategic brand communications. Prereq: 6250 or MBA 6252 or 6253.			
<b>7207</b>	<b>Pricing Strategy</b>	<b>G</b>	<b>1½</b>
Focus on microeconomic theory, statistics and psych to shed light on pricing. Explore foundation of sound pricing decisions: costs, customer and competition, and then move on to current pricing strategies, tactics and their application. Prereq: MBA 6250 or 6252 (840). Not open to students with credit for 851.			
<b>7208</b>	<b>Digital Marketing</b>	<b>G</b>	<b>1½</b>
Management of digital marketing assets in order to develop strategies and execute tactics associated with cross-channel marketing in the digital era. Prereq: 6250 or MBA 6252 (840).			
<b>7209</b>	<b>Strategic Sales Force Management</b>	<b>G</b>	<b>1½</b>
Focuses on management of the sales function and its coordination with other components of marketing strategy including pricing, product development, promotion, and distribution. Prereq: MBA 6252 or 6253.			
<b>7211</b>	<b>Consumer Psychology</b>	<b>G</b>	<b>1½</b>
Course delves into consumer psych, and the means by which consumer behavior can be influenced or altered. Course will explore the psychological underpinnings of consumer information processing, attitude formation and persuasion, learning and memory. Prereq: 6250 or MBA 6252 or 6253.			
<b>7212</b>	<b>Business Development: Client Acquisition &amp; Retention</b>	<b>G</b>	<b>1½</b>
Explore the value process in business to business relationships, leading such relationships; facilitating alliances; leading customer solutions; understanding interfaces with other functions; and quantifying/measuring value. Prereq: MBA 6252 or 6253.			
<b>7214</b>	<b>Cross Channel Marketing</b>	<b>G</b>	<b>1½</b>
Examines the unique challenges of bringing a service brand to life across multiple channels. Understanding the methods, processes and approaches to creating holistic experiences that resonate with the target audience is covered. Prereq: MBA 6252 or 6253.			
<b>7215</b>	<b>Global Marketing and Sustainability</b>	<b>G</b>	<b>1½</b>
Review core concepts of global marketing including, pricing, research, positioning, strategy, social responsibility, communicating with world consumers, and management team development from a sustainability viewpoint. Prereq: 6250 or MBA 6252 or 6253. Not open to students with credit for 845.			
<b>7218</b>	<b>New Product Management</b>	<b>G</b>	<b>1½</b>
Strategies and tools for the development of successful new products. Emphasis is placed on opportunity identification, concept generation and testing, product design, and development and launch. Prereq: MBA 6252 (840).			

## 78 Business Admin: Marketing & Logistics

**7226 Marketing Simulation** G 1½

Student teams analyze a business case and formulate their strategy for the firm. Within the context of a realistic and complex business simulation, students will implement their strategy through submission of marketing variable decisions and analysis of market response.  
Prereq: MBA 6252 or 6253.

**7227 Prescriptive Data Analysis** G 1½

Focuses on identifying the best course of action to take in response to what is known about the business and its environment. Students will develop skills in translating business objectives, threats and opportunities into actionable data collection and analysis. Students will also become be exposed to and become proficient with concepts spanning the analysis of pre-existing, secondary data.  
Prereq: MBA 6252 or 6253.

**7228 Data Driven Marketing** G 1½

Increasing computing power allows companies amassing large amounts of customer data. As a consequence, marketing decisions are becoming more data driven. Students will learn statistical learning concepts related to marketing data analytics; tools, techniques, and advanced models will be introduced not only for predicting consumer choices but also for measuring the effectiveness of marketing effort.  
Prereq: MBA 6252 or 6253.

**7230 Customer Analytics** G 1½

Tools for the analysis of survey and marketplace data. Topics include design of the surveys, scale development, analysis of the recency, frequency and monetary value of transactions, web-based 'click-stream' data and others.  
Prereq: MBA 6250, 6252, or 6253.

**7243 Prescriptive Analytics** G 3

Focus on prescriptive analytics to determine causal effects and identify optimal decisions in business. Emphasis on programming data analysis using the R statistical language.  
Prereq: Enrollment in the SMB-A program, or permission of instructor.

**7244 Bayesian Analysis** G 1½

Overview of recent developments and applications of Bayesian statistical methods in business analytics. Emphasis on developing a conceptual understanding of quantitative models, and their operational translation into methods for data analysis.  
Prereq: Enrollment in the SMB-A program, or permission of instructor.

**7245 Analytics of Micro Marketing Data** G 1½

Focus on the analytics of disaggregate marketing data including appropriate measurement scales and techniques for specific data types. Emphasis on modeling techniques and tools, such as textual analysis, utility-based analysis, and attribution models, to solve marketing problems in corporate setting.  
Prereq: Enrollment in the SMB-Analytics program, or permission of instructor.

**7247 Analytics for Macro Marketing Data** G 1½

A 'macro' approach to understanding the marketing decision process with implications stretching beyond the firm: i.e., consumers privacy, search and recommendation. Emphasis on data structures arising from online platforms and marketplaces as well as the prevalent technological and regulatory landscape in the industry.  
Prereq: Enrollment in SMB-Analytics program.

**7249 SMB-A Capstone Projects** G 3

The course provides students with an opportunity to apply, showcase, fine-tune and expand the skills and knowledge acquired in courses in the program by working through substantive real-world analytics projects from initial conception to the production of useful insights and improved decisions.  
Prereq: Enrollment in SMB-Analytics program.

**7380 Strategic Logistics Management** G 1½

Develop an understanding of key drivers of logistics performance and their inter-relationships with strategy and other functional areas. Focus on developing analytic, problem-solving, and cost trade-off management skills.  
Prereq: Enrollment in MBA, MBLE, or MAcc.

**7381 Logistics Decision Making** G 1½

This case-based course will prepare students to make data-driven decisions on key logistics issues and then make these decisions actionable through a focus on appropriate solution methods needed to achieve firm financial goals.  
Prereq: 7380.

**7382 Logistics Analytics** G 1½

Focuses on the application of quantitative techniques. Problems addressed include demand forecasting, inventory control, and network design using spreadsheet analysis, optimization and simulation.  
Prereq or concur: 7380.

**7383 Supply Chain Management** G 1½

Students learn the distinction between logistics and supply chain management (SCM) and develop SCM skills with a focus on cross-functional integration of key processes within the firm and across the network of firms that comprise the supply chain.  
Prereq or concur: MBA 6252 or 6253, or enrollment in MAcc program, or enrollment in MBLE program.

**7386 Logistics Technology and Application** G 1½

Focus on the operational use and appropriate contextual use of logistics software technologies such as transportation management systems, warehouse management systems, inventory management and network design.  
Prereq: 7380.

**7387 Lean Logistics** G 1½

Examines using Lean tools and insights to remove bottlenecks and impediments to efficient, effective logistics, resulting in reduced logistics costs and improved service.  
Prereq: 7380.

**7388 Field Problems in Logistics** G 3

Advanced graduate studies course where students work in groups as consultants to solve actual business problems for clients. Objectives include developing problem solving skills and gaining practical experience.  
Prereq: 7380.

**7715 Attracting and Retaining Customers in Health Sciences** G 1½

This class focuses on the process of attracting and retaining customers in the health sciences industry. Students will explore how to drive growth through new patient acquisition and retention as well as by understanding the practice's ability to provide value, and the patient's needs in relation to that value.  
Prereq: BusMgt 7701, BusFin 7400, and BusMHR 7264; and enrollment in the Graduate Business Minor in Health Sciences.

**7800 Advanced Topics in Marketing and Logistics for EMBA** G 1½ - 3

Advanced Topics in Marketing and Logistics for students in the Executive MBA Program.  
Prereq: Enrollment in Executive MBA program. Repeatable to a maximum of 15 cr hrs or 7 completions.

**7999 Research in Marketing and Logistics: Thesis** G 1 - 12

Topics in Marketing and Logistics.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is progress graded (S/U).

**8250 Consumer Behavior** G 4

Study of the academic literature on consumer behavior with emphasis on the theoretical and empirical contributions of consumer research.  
Prereq: Doct standing in BusAdm, or permission of instructor. Repeatable to a maximum of 8 cr hrs.

**8252 Marketing Models** G 2 - 4

A study of recent model-based research in the marketing literature; emphasis on the strengths and weaknesses of various modeling approaches in specific problem areas and evaluation of model-based research.  
Prereq: Doct standing in BusAdm, or permission of instructor. Not open to students with credit for 951. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is progress graded.

**8253 Recent Advancements in Marketing Research** G 1½ - 4

Provide students with exposure to leading marketing scholars and their most current research and give them an opportunity to critically evaluate it.  
Prereq: Doct standing in BusAdm, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 6 completions.

**8380 Research Seminar in Logistics** G 1½

Research issues in logistics. For each topic, key literature will be reviewed and discussed to understand the current state of research in the area, evaluate the research methodologies employed, and identify gaps in the academic literature.  
Prereq: 7380 and 7381, and enrollment in Fisher College of Business PhD program. Repeatable to a maximum of 9 cr hrs.

**8381 Research Seminar in Supply Chain Management** G 1½

Focuses on research issues in supply chain management.  
Prereq: 7380 (880) and 7383 (885). Repeatable to a maximum of 9 cr hrs.

**8382 Research Seminar in Transportation** G 1½

Research Issues in Transportation. For each topic, key literature will be reviewed and discussed to understand the current state of research in the area, evaluate the research methodologies employed, and identify gaps in the academic literature.  
Prereq: 7380 and 7381, and enrollment in Fisher College of Business PhD program. Repeatable to a maximum of 9 cr hrs.

**8383 Optimization Modeling in Logistics** G 1½

Focus on the application of optimization modeling techniques to logistics problems. The goal is to familiarize students with advanced modeling techniques and learn how they have been applied to solve logistics problems in the academic literature.  
Prereq: 7380 and 7381. Repeatable to a maximum of 9 cr hrs.

**8385 Empirical Methods in Logistics & Supply Chain Management Research** G 1½

Overview of empirical research in Logistics and Supply Chain Management, with a focus on appropriate topics, literature review, and hypothesis development in empirical papers. Additional focus on data analysis through statistical and econometric methods.  
Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 9 cr hrs.



<b>8386</b>	<b>Theory &amp; Qualitative Methods in Logistics &amp; Supply Chain Management Research</b>	<b>G</b>	<b>1½</b>
Introduction to multiple theoretical perspectives used in Logistics and Supply Chain Management research, as well as the qualitative methods utilized to explore theoretical concepts. Prereq: Enrollment in Fisher College of Business PhD program, or permission of instructor. Repeatable to a maximum of 9 or hrs.			
<b>8999</b>	<b>Research in Marketing and Logistics: Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Topics in Marketing and Logistics. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 6 completions. This course is progress graded (S/U).			

## Business Technology

<b>1151T</b>	<b>General Economics</b>	<b>U</b>	<b>3</b>
Study of macro and micro-economic principles applicable to business, agricultural and personal financial decision making. Prereq or concur: GenMath 1040T or Math 1050 or Math Placement Level R or higher. Not open to students with credit for AEDEcon 2001. This course is available for EM credit.			
<b>1201T</b>	<b>Exploring Business</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>1202T</b>	<b>Software Applications</b>	<b>U</b>	<b>1</b>
An overview of basic computer skills and study of the features and capabilities of presentations, word processing, spreadsheet and database software as decision management aids. Prereq: Not open to students with credit for 202T. This course is available for EM credit.			
<b>2191T</b>	<b>Business Internship</b>	<b>U</b>	<b>3</b>
Experience of employment in a business to provide varied occupational experience, supervised by an employer, and coordinated by faculty. A grade of C or better required to meet graduation requirements. Prereq: GPA 2.00 or above, and permission of instructor. Not open to students with credit for 290.02T or 290.03T. Repeatable to a maximum of 6 or hrs.			
<b>2193T</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>2207T</b>	<b>Problem Solving with Spreadsheets and Databases</b>	<b>U</b>	<b>2</b>
A problem-solving approach to managing typical business scenarios utilizing spreadsheets and databases. Prereq: 1202T (202T). Not open to students with credit for 204T and 205T. This course is available for EM credit.			
<b>2231T</b>	<b>Fundamentals of Marketing</b>	<b>U</b>	<b>3</b>
A survey of the field of marketing including functions, policies, problems, structure, strategies, and opportunities. Prereq or concur: 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for 231T. This course is available for EM credit.			
<b>2232T</b>	<b>Personal Selling</b>	<b>U</b>	<b>3</b>
A study of the basic principles and concepts of personal selling with emphasis on practical application and personal interaction. Prereq: Not open to students with credit for 232T. This course is available for EM credit.			
<b>2240T</b>	<b>Introduction to Project Management</b>	<b>U</b>	<b>3</b>
An introduction to project management concepts and techniques focusing on how to initiate, plan, manage, control, and close a project. This course is available for EM credit.			
<b>2241T</b>	<b>Small Business Management</b>	<b>U</b>	<b>3</b>
A general study of the field of small business focusing on policies, strategies, organization, operation, and problems associated with the operation of an entrepreneurial enterprise. Recommended prerequisite: AEDEcon 2105. Prereq: 1151T or AEDEcon 2001. This course is available for EM credit.			
<b>2244T</b>	<b>Human Resource Management and Leadership</b>	<b>U</b>	<b>3</b>
A study of human resource, supervisory, and leadership principles and practices that focus on recruitment, training, evaluating, and compensating employees for improved productivity. This course is available for EM credit.			
<b>2247T</b>	<b>Business Law</b>	<b>U</b>	<b>3</b>
A study of legal principles, contracts, negotiable instruments, leases, sales, product liability, and consumer protection. Prereq: Not open to students with credit for 247T. This course is available for EM credit.			

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<b>2248T</b>	<b>Introduction to Cooperatives</b>	<b>U</b>	<b>2</b>
An examination of business organizations including cooperatives and non-cooperatives. Analysis of the role of government in American business, with emphasis on the history, legal basis, organization, and operation of cooperatives. Prereq: Not open to students with credit for 248T. This course is available for EM credit.			
<b>2249T</b>	<b>Fundamentals of Business Finance</b>	<b>U</b>	<b>3</b>
A study of basic finance principles, such as financial institutions, time value of money, financial analysis, risk and return, budgeting, and investments. Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for 249T. This course is available for EM credit.			
<b>2250T</b>	<b>Fundamentals of International Business</b>	<b>U</b>	<b>3</b>
An overview of international business including the environment, strategies, issues, decisions, and challenges that global businesses encounter. Prereq: 1151T or AEDEcon 2001. This course is available for EM credit.			

## Cancer Biology and Genetics

<b>4998</b>	<b>CBG Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Individual minor investigation in the field of virology, immunology, microbial pathogenesis, or cancer genetics. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>5700</b>	<b>Introduction to Personalized Therapeutics and Pharmacogenomics</b>	<b>U G</b>	<b>3</b>
Exploration of the trend to therapy tailored to the individual patient rather than "one drug fits all;" inter-individual differences in drug responses, with emphasis on genetic and genomic factors; ethical, regulatory and economic issues that impact drug therapies. Cross-listed in BioPhrm and Phr.			
<b>6930</b>	<b>Individual Studies</b>	<b>G</b>	<b>3</b>
Individual minor investigation in the field of virology, immunology, microbial pathogenesis or cancer genetics. Repeatable to a maximum of 15 or hrs. This course is graded S/U.			
<b>7741</b>	<b>Molecular Virology and Pathogenesis of Viruses</b>	<b>G</b>	<b>5</b>
An integrated study of the molecular mechanisms of virus replication and host-virus relationships that control virus pathogenesis or use as a therapeutic agent. Prereq: Grad standing, or permission of instructor. Cross-listed in MolGen and VetBios.			
<b>7931</b>	<b>Student Seminar in Cancer Biology and Genetics</b>	<b>G</b>	<b>1</b>
Student and post-doctoral presentations of research. Repeatable to a maximum of 6 or hrs. This course is graded S/U.			
<b>8270</b>	<b>Biochemical Mechanisms of Carcinogenesis</b>	<b>G</b>	<b>2</b>
Provide students with an overview of fundamental mechanisms leading to cancer. This will be done through review of current and classic literature. Prereq: Course work in one year of Grad level Biochem, or permission of instructor. Cross-listed in MCDBio 8270.			
<b>8999</b>	<b>Research in Cancer Biology and Genetics</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Grad standing in CBG. Repeatable to a maximum of 18 or hrs or 18 completions. This course is graded S/U.			

## Catalan

<b>5501</b>	<b>Catalan for Spanish Speakers I</b>	<b>U G</b>	<b>3</b>
Rapid introduction to Catalan language. Intended for students with at least High Intermediate-level Spanish skills. Prereq or concur: Spanish 3401, 3403, or 3404, or equiv; or permission of instructor.			

## Center for Languages, Literatures and Cultures

<b>3301.01S</b>	<b>Intercultural Competence for Global Citizenship</b>	<b>U</b>	<b>2</b>
This course is preparation for teaching in the one-week summer camp for middle school students. Students will learn the theories, skills and techniques involved in teaching their area of expertise as it relates to intercultural competence and will prepare the teaching materials that they will use in the summer camp. Students are also required to enroll in 3301.02S. Prereq: A grade of B or above in a 2000-level world language course. Not open to students with credit for 2302S or 3302S. This course is progress graded. GE service learning course.			
<b>3301.02S</b>	<b>Intercultural Competence for Global Citizenship Summer Camp</b>	<b>U</b>	<b>1</b>
Students will participate as assistants and instructors in a one-week summer camp for middle school students. Students will assist with the running of the camp, teach their area of expertise as it relates to intercultural competence and organize and teach an international game. Prereq: 3301.01S. Not open to students with credit for 2302S or 3302S. GE service learning course.			

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### 3302S Intercultural Competence for Global Citizenship After School Program U 3

Students will learn theories, skills and techniques involved in teaching their area of expertise as it relates to intercultural competence and will prepare the teaching materials that they will use at a local elementary and/or middle school.

Prereq: A grade of B or above in a 2000-level world language course. Not open to students with credit for 2301.02S or 3301.02S. GE service learning course.

### 5100 Introduction to Community Interpreting U G 3

CLLC 5100 is an advanced course designed to introduce students to the foundational aspects of community interpreting. Students will explore the profession of community interpreting with special emphasis on its core ethical principles, protocols and skills, strategies for strategic mediation within the interpreted encounter, the professional identity and role of the community interpreter.

Prereq: 15 cr hrs in the same language.

### 5101 Introduction to Professional Translation U G 3

This course introduces students to the field, ethics, and methodologies of professional translation, as well as provides basic professionalization for a career in the field. Students will learn about the principles of translation, how to research for a translation, and develop the skills and tools to become professional translators.

Prereq: 15 cr hrs in the same language.

### 5102 Introduction to Literary Translation U G 3

This course will give students who want to practice literary translation in one or more of their language pairs an opportunity to develop their own translation projects through a variety of approaches.

Prereq: 15 cr hrs in the same language.

### 5103 Translation and Interpretation Practicum U G 3

The purpose of this course is to offer students an opportunity to consolidate translation/interpretation skills in their working languages in real life settings that are meaningful to them and relevant to their career aspirations. The precise configuration of the practicum experience will vary from student to student and should be agreed upon between the student and the course instructor.

Prereq: 5100, 5101, or 5102. This course is graded S/U.

## Center for the Study and Teaching of Writing

### 3467S Issues and Methods in Tutoring Writing U 3

Theories and practices in tutoring and writing; explores the writing-learning connections; prepares students to work as writing consultants/tutors for small writing groups.

Prereq: English 1110.01 (110.01), or equiv. Not open to students with credit for HumCol 467 or English 3467S (467). Cross-listed in English.

## Chemical and Biomolecular Engineering

### 2194 Group Studies in Chemical and Biomolecular Engineering U 1 - 6

Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

### 2200 Process Fundamentals U 4

Application of physicochemical principles to problems of the chemical industry; stoichiometry and material balance.

Prereq: Chem 1220 (123), and Engr 1182 (Engineer 183.01). Prereq or concur: Math 2177 (254), and CPHR 2.0 or above, and permission of department. Not open to students with credit for 200 or 201.

### 2420 Transport Phenomena I U 4

Introduction to momentum, mass, and heat transfer with emphasis on the analogies between them; practical applications of momentum transfer (fluid flow).

Prereq: 2200 (201), and Math 2177 or 415.01, and enrollment in CBE, FABEng, or EngPhysics major; or Grad standing; or permission of instructor. Not open to students with credit for 420 or 521.

### 2523 Separation Processes U 3

The application of mass and energy balances and transport phenomena such as fluid, heat, and mass transfer to chemical engineering separation operations of distillation, absorption, evaporation, extraction, drying, etc.

Prereq: 2200 (201), and enrollment in CBE major. Prereq or concur: 2420 (420), or permission of instructor or Grad standing. Not open to students with credit for 523.

### 3508 Thermodynamics U 4

Application of the fundamental concepts and laws of thermodynamics to problems of the chemical industry; stress on computational problem work.

Prereq or concur: 2420 (420), and enrollment in CBE, FABEng, or EngPhysics major; or permission of instructor. Not open to students with credit for 509.

### 3521 Transport Phenomena II U 4

Emphasis on conduction, convective and radiation heat transfer, mass transfer and stagewise operations with applied computational problems.

Prereq: 2420 (420), and enrollment in CBE, FABEng, or EngPhysics major; or permission of instructor or Grad standing. Not open to students with credit for 522.

### 3610 Kinetics and Reactor Design U 4

Chemical and engineering principles for the design and operation of chemical reactors; kinetics of simple homogeneous systems and introduction to heterogeneous catalysis.

Prereq or concur: 3508 (509) or FABE 3120; and enrollment in CBE, or FABEng, or EngPhysics major; or permission of instructor; or Grad standing. Not open to students with credit for 610.

### 3631 Chemical and Biomolecular Engineering Unit Operations Laboratory I U 2

Laboratory investigation of the operating characteristics and efficiency of chemical engineering equipment such as distillation, absorption, heat exchangers, and three phase mixing dynamics with mass transfer.

Prereq or concur: 2523 (523) and 3610 (610), and enrollment in CBE major. Not open to students with credit for 630 or 4630.

### 3632 Chemical and Biomolecular Engineering Unit Operations Laboratory II U 2

Laboratory investigation of the operating characteristics and efficiency of chemical engineering equipment such as distillation, absorption, heat exchangers, and three phase mixing dynamics with mass transfer.

Prereq or concur: 2523 (523) and 3610 (610); and enrollment in CBE major. Not open to students with credit for 630 or 4630.

### 4193 Individual Studies in Chemical and Biomolecular Engineering U 1 - 12

Provides the opportunity to pursue special studies or research in biomedical engineering not otherwise covered.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions. This course is graded S/U.

### 4194 Group Studies in Chemical and Biomolecular Engineering U 1 - 6

Provides groups of students opportunities to pursue special studies not otherwise offered.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

### 4624 Chemical Process Dynamics and Control U 3

Study of the dynamics and control of chemical processes; mathematical models of simple processes, including feedback control, are derived, analyzed, and simulated.

Prereq: 2523 (523) or 3610 (610), and enrollment in CBE major; or Grad standing, or permission of instructor. Not open to students with credit for 624.

### 4760 Chemical and Biomolecular Engineering Process and Product Design Principles I U 4

Process and product design concepts encompassing a broad spectrum of fundamental engineering principles including safety, industrial practices and heuristics, flowsheet synthesis, heat integration, process/product development concepts, economic evaluations, and optimization concepts.

Prereq: 3521, 3610 (610), and enrollment in CBE or EngPhysics major; or Grad standing; or permission of instructor. Not open to students with credit for 760.

### 4764 Chemical and Biomolecular Engineering Process Design and Development U 4

Process design studies on selected chemical processes encompassing a broad spectrum of fundamental engineering principles; optimization studies utilizing economic and technical simulation.

Prereq or concur: 4760 (760), and enrollment in CBE major. Not open to students with credit for 762.

### 4998 Undergraduate Research in Chemical and Biomolecular Engineering U 1 - 6

Supervised research in Chemical and Biomolecular Engineering.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

### 4998H Honors Undergraduate Research in Chemical and Biomolecular Engineering U 1 - 6

Supervised Honors level research in Chemical and Biomolecular Engineering.

Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

### 4999 Chemical and Biomolecular Engineering Research for Thesis U 1 - 5

Supervised research and project work arranged individually for students resulting in written thesis.

Prereq: GPA 3.0 or above, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

### 4999H Chemical and Biomolecular Engineering Research for Honors Thesis U 1 - 5

Supervised research and project work arranged individually for honors students resulting in written Honors thesis.

Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

### 5194 Group Studies in Chemical and Biomolecular Engineering U G 1 - 6

Provides groups of students opportunities to pursue special studies not otherwise offered.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

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<b>5200</b>	<b>Introduction to Petroleum Engineering</b>	<b>U G</b>	<b>3</b>
Introduction to petroleum engineering, including fundamental petroleum engineering concepts, quantities and unit systems, petroleum geology, exploration, drilling, reservoir engineering, fluids and rock properties, production, well testing, enhanced/improved oil recovery. Prereq: Jr standing or above in Engineering, Earth Sciences, or Business. Concur: EarthSc 5661.			
<b>5210</b>	<b>Petroleum Reservoir Engineering</b>	<b>U G</b>	<b>3</b>
Determination of reserves; material balance methods; aquifer models; fractional flow and frontal advance; displacement, pattern, and vertical sweep efficiencies in waterfloods; enhanced oil recovery processes; design of optimal recovery processes. Systematic theoretical and laboratory study of physical properties of petroleum reservoir rocks. Prereq: 5200. Concur: EarthSc 5661.			
<b>5230</b>	<b>Petroleum Drilling and Production Engineering</b>	<b>U G</b>	<b>3</b>
The design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics, well control, casing design; well cementing directional drilling, offshore drilling. Introduction to production operations and oil field equipment including onshore and offshore production systems. Prereq: 5200 and EarthSc 5661; or Grad standing; or permission of instructor.			
<b>5260</b>	<b>Petroleum Project Evaluation</b>	<b>U G</b>	<b>3</b>
Economic analysis and investment decision methods in the petroleum industry; reserves estimation, depletion, petroleum taxation and market regulations, and projects of the type found in the industry; project evaluation case studies. Prereq: 5200 and EarthSc 5661.			
<b>5550</b>	<b>Engineering Principles in Cancer</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to introduce engineering principles in the context of cancer progression and therapy. Prereq: MechEng 3500, 3503, or CBE 2420; or permission of instructor. Not open to students with credit for BioMedE 5550 or MechEng 5550. Cross-listed in BioMedE and MechEng.			
<b>5710</b>	<b>Computational Catalysis</b>	<b>U G</b>	<b>3</b>
Methods used to model catalyst reactivity at the atomic-scale; application of quantum methods, primarily density functional theory (DFT); kinetic Monte Carlo and microkinetic modeling; using DFT to simulate surface science and catalysis spectroscopy methods. Prereq: 3610 and Chem 4300; or Grad standing; or permission of instructor.			
<b>5712</b>	<b>Catalysis and Catalytic Processes</b>	<b>U G</b>	<b>3</b>
Kinetics of catalytic processes, mass transfer in catalysis, catalyst preparation and characterization, deactivation of catalysts, catalytic reactors, and application of catalytic phenomena in industrial processes. Prereq: 3521 (522) and 3610 (610), or Grad standing. Not open to students with credit for 712.			
<b>5713</b>	<b>Fuel Cells and Catalysis</b>	<b>U G</b>	<b>3</b>
An introduction to fuel cells and related concepts with an emphasis on the catalytic phenomena involved in fuel cells. Prereq: ChBE 3508, 3610 (610), 509, Chem 4310, or 531, or Grad standing, or permission of instructor. Not open to students with credit for 713.			
<b>5715</b>	<b>Particle Technology</b>	<b>U G</b>	<b>3</b>
Engineering processes involving particulates and powders. Multiphase transport phenomena and fluidization are emphasized. Prereq: 2523 (523), and Math 2177 or Math 415.01; or Grad standing; or permission of instructor. Not open to students with credit for 715.			
<b>5734</b>	<b>Molecular Informatics</b>	<b>U G</b>	<b>3</b>
Overview of molecular informatics, with emphasis on its use in modern drug discovery and exploration of chemical structure-property relationships. Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 734.			
<b>5735</b>	<b>Cellular Nanotechnology</b>	<b>U G</b>	<b>3</b>
Application of nanotechnology to cells for sensing and subcellular manipulation. Synthesis and biological modification of quantum dots and magnetic nanostructures, their unique material properties, and their application. Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 735 or BiomedE 765. Cross-listed in BiomedE 5635.			
<b>5761</b>	<b>Chemical and Biomolecular Engineering Processes</b>	<b>U G</b>	<b>3</b>
Integration of fundamentals of chemistry, chemical engineering operations, thermodynamics, reaction kinetics and economics for optimum design and operation of chemical process plants. Prereq: Sr or Grad standing in CBE or Chem. Not open to students with credit for 761.			
<b>5765</b>	<b>Principles of Biochemical Engineering</b>	<b>U G</b>	<b>3</b>
The application of biochemical engineering principles for modern bioprocesses and in the area of industrial biotechnology. Prereq: 2523 (523) or 3610 (610), or Grad standing, or permission of instructor. Not open to students with credit for 765.			
<b>5766</b>	<b>Biotechnology and Bioprocess Engineering</b>	<b>U G</b>	<b>3</b>
Fundamentals of biotechnology and their applications to bioprocessing with emphasis on fermentation and bioseparation. Completion of Bio 1113 or 2100 is recommended. Prereq: Jr standing in CBE, or permission of instructor. Not open to students with credit for 766.			

<b>5771</b>	<b>Air Pollution</b>	<b>U G</b>	<b>3</b>
Introduction to principal aspects of air pollution, including engineering control of stationary sources, atmospheric chemistry, aerosol behavior, transport and dispersion modeling. Prereq: Sr or Grad standing, or permission of instructor. Not open to students with credit for 771.			
<b>5772</b>	<b>Principles of Sustainable Engineering</b>	<b>U G</b>	<b>3</b>
Introduces the principles, techniques, and challenges of environmentally conscious decision making in chemical engineering. A study of systematic methods for the analysis and development of sustainable industrial products and processes. Prereq: 3508 or equivalent, Grad standing, or permission of instructor. Not open to students with credit for 772.			
<b>5773</b>	<b>Introduction to High Polymer Engineering</b>	<b>U G</b>	<b>3</b>
Introduction to polymeric materials, polymerization methods and kinetics, polymer solution properties, molecular weight determination and polymer physical/mechanical properties. Prereq: 3610 (610) or Chem 2510 (251), or permission of instructor. Not open to students with credit for 773.			
<b>5774</b>	<b>Polymer Membranes</b>	<b>U G</b>	<b>3</b>
Membrane separation mechanisms, transport models, permeability computations/measurements, membrane materials/types/modules, membrane contactors/reactors, and applications. Prereq: 3508 (509), or Grad standing; or permission of instructor. Not open to students with credit for 774 or MatScEn 774. Cross-listed in MatScEn 5774.			
<b>5775</b>	<b>Rheology of Fluids</b>	<b>U G</b>	<b>3</b>
Principles of rheology, including the characterization of non-Newtonian materials, rheological equations of state, viscometric flows, measurements, and applications to the flow of industrial materials. Prereq: 2420 (420), or permission of instructor. Not open to students with credit for 775.			
<b>5777</b>	<b>Introduction to Polymer Engineering at Macro-, Micro-, and Nanoscale</b>	<b>U G</b>	<b>3</b>
An introduction to nanomaterials and nanotechnology. Important polymeric micro/nanomaterials and structures, and their manufacturing techniques. Prereq: 3521 (521), MechEng 3500 (500), 4510 (510), MatScEn 2251 (401), or 3151 (526), or permission of instructor. Not open to students with credit for 777.			
<b>5779</b>	<b>Design and Analysis of Experiments</b>	<b>U G</b>	<b>3</b>
Design and analysis of experiments with emphasis on applications in engineering. Prereq: Jr or Sr standing in CBE. Not open to students with credit for 779.			
<b>5790</b>	<b>Modeling and Simulation</b>	<b>U G</b>	<b>3</b>
Application of chemical and biomolecular engineering principles to construct mathematical models of processes and perform simulations. Prereq: Jr, Sr, or Grad standing in CBE. Not open to students with credit for 790.			
<b>6999</b>	<b>Thesis Research in Chemical and Biomolecular Engineering</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis. Prereq: Grad standing. Repeatable. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Chemical and Biomolecular Engineering</b>	<b>G</b>	<b>1 - 6</b>
Designed to give the student an opportunity to pursue special studies and topics not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions.			
<b>8781</b>	<b>Research Communications in Chemical and Biomolecular Engineering</b>	<b>G</b>	<b>2</b>
Analysis and critique of chemical and biomolecular engineering research literature. Training and practice in written and oral communication of research ideas. Prereq: Grad standing. Not open to students with credit for 881.			
<b>8799</b>	<b>Teaching Practicum in Chemical and Biomolecular Engineering</b>	<b>G</b>	<b>1 - 6</b>
Teaching and instructional development under faculty guidance in the chemical and biomolecular engineering curriculum. Prereq: Grad standing. International students for whom English is not the first language must first become certified in English, either through the SPEAK or Mock Teaching Test. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.			
<b>8801</b>	<b>Analysis of Chemical and Biomolecular Engineering Problems</b>	<b>G</b>	<b>3</b>
Modern techniques for the theoretical analysis of chemical and biomolecular engineering problems. Prereq: Grad standing. Not open to students with credit for 801.			
<b>8808</b>	<b>Advanced Thermodynamics I</b>	<b>G</b>	<b>3</b>
Detailed discussion of the thermodynamic properties of pure compounds and mixtures; computational problem work emphasizes the application of thermodynamics in industrial problems. Prereq: 3508 (508), and Grad standing; or permission of instructor. Not open to students with credit for 808.			

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**8809 Advanced Thermodynamics II** G 3

Continuation of CBE 8808 and special topics of thermodynamics that are of interest to chemical and biomolecular engineering.  
Prereq: 8808 (808), and Grad standing; or permission of instructor. Not open to students with credit for 809. Repeatable to a maximum of 6 cr hrs.

**8812 Advanced Kinetics I** G 3

Chemical engineering kinetics from the viewpoint of industrial chemical processes.  
Prereq: 2523 (523) and 3610 (610), and Grad standing; or permission of instructor. Not open to students with credit for 815.01 or 815.08.

**8815 Advanced Transport** G 3

Momentum and mass transfer theory at both the macroscopic and microscopic levels utilizing integral and differential conservation equations.  
Prereq: Grad standing in ChemEng, or permission of instructor. Not open to students with credit for 815.01 or 815.08.

**8895 Seminar in Chemical and Biomolecular Engineering** G 1

Formal lectures and discussion of state of the art research and development in chemical and biomolecular engineering.  
Prereq: Grad standing. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

**8999 Dissertation Research in Chemical and Biomolecular Engineering** G 1 - 15

Research for dissertation purposes only.  
Prereq: Grad standing. Repeatable. This course is graded S/U.

### Chemical Physics

**7998 Graduate Research** G 1 - 10

Laboratory and/or theoretical research on an individual basis on topics of current interest.  
Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 6 completions. This course is progress graded (S/U).

**7999 Masters Degree Research in Chemical Physics** G 1 - 12

Research for Masters thesis purposes only.  
Prereq: Permission of instructor. Repeatable. This course is progress graded (S/U).

**8880.01 Frontiers in Spectroscopy** G 1 - 3

An overview of both fundamental and applied topics on the frontier of spectroscopy.  
Prereq: Physics 7501, Chem 6510, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 6 completions. This course is graded S/U.

**8880.02 Frontiers in Spectroscopy** G 1 - 3

An overview of both fundamental and applied topics on the frontier of spectroscopy.  
Prereq: Physics 7501, Chem 6510, or permission of instructor.

**8999 Research in Chemical Physics** G 1 - 12

Research for doctoral dissertation purposes only.  
Prereq: Permission of instructor. Repeatable. This course is progress graded (S/U).

### Chemistry

**1100 Chemistry and Society** U 3

Terminology, methods, and principles of chemistry; examination of the roles of chemistry in our modern technological society.  
Prereq: Math 1050 (075 or 076) or an ACT math subscore of 22 or higher that is less than two years old, or satisfactory score on Ohio State Math Placement Test. Not open to students with credit for 1110 (101), 1210 (121), 1910H (201H), or 100, or any Chem course that uses these courses as prerequisites. GE nat sci phys course (BA in ASC only).

**1110 Elementary Chemistry** U 5

Introductory chemistry for non-science majors, including dimensional analysis, atomic structure, bonding, chemical reactions, states of matter, solutions, chemical equilibrium, acids and bases, along with topics in organic and biological chemistry.  
Prereq: Math 1073, 1074, 1075 or above; Math Placement Level L, M, N, or R; or ACT Math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 1210, 1250, 1610, or 1910H. This course is available for EM credit. GE nat sci phys course.

**1205 Foundations of General Chemistry** U 2

Chemistry 1205 is a preparatory course for under-prepared students previously enrolled in Chemistry 1210/1610. Chemistry 1205 will prepare students to continue on and complete Chemistry 1210/1610 in a subsequent semester. The textbook for Chem 1205 will be the same textbook used in Chem 1210/1610.  
Prereq: Failed or withdrew from Chem 1210 or 1610, or Math 1075 or Math placement N.

**1210 General Chemistry I** U 5

First course for science majors, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, thermochemistry, electron configuration, bonding, molecular structure, gases, liquids, and solids.  
Prereq: One unit of high school chemistry, and Math Placement Level L or M; or a grade of C- or above in Math 1120, 1130, 1131, 1148, 1150, or above. Not open to students with credit for 1220, 1620, 1920H, 1250, 1610, or 1910H. This course is available for EM credit. GE nat sci phys course.

**1220 General Chemistry II** U 5

Continuation of 1210 for science majors, covering solutions, kinetics, chemical equilibrium, solubility and ionic equilibria, qualitative analysis, thermodynamics, electrochemistry, descriptive chemistry, coordination compounds, and nuclear chemistry.  
Prereq: 1210, 1215, 1250, 1610 (162), 1910H (202H), or 122, and Math Placement Level L or M; or a grade of C- or above in Math 1130 (130), 1131 (131), 1148 (148), or 1150 (150), or above. Not open to students with credit for 1620 (163), 1920H (203H), 123, 2310, 2510 (251), 2610, or 2910H (251H). This course is available for EM credit. GE nat sci phys course.

**1250 General Chemistry for Engineers** U 4

First course for engineering majors, covering dimensional analysis, atomic and molecular structure, the mole, stoichiometry, chemical reactions, states of matter, solutions, kinetics, equilibrium, acids and bases, thermodynamics, and electrochemistry.  
Prereq: One unit of high school chemistry, and Math Placement Level L or M; or a grade of C- or above in Math 1130 (130), 1131 (131), 1148 (148), or 1150 (150), or above. Not open to students with credit for 1210, 1610, 1910H, 125, 2310, 2510 (251), 2610, or 2910H (251H). This course is available for EM credit. GE nat sci phys course.

**1610 General Chemistry for Majors I** U 5

First course for chemistry and biochemistry majors, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, thermochemistry, electron configuration, bonding, molecular structure, gases, liquids, and solids.  
Prereq: One unit of high school chemistry, and Math Placement Level L or M; or a grade of C- or above in Math 1120, 1130, 1131, 1148, or 1150, or above, and enrolled in Chemistry or Biochemistry major; or permission of department. Not open to students with credit for 1210, 1220, 1250, 1620, 1910H, or 1920H. GE nat sci phys course.

**1612 Peer-led Team Learning for Chemistry 1610 Students** U 1

Provides a structure with which students can work actively in groups of 6 to 8 peers on challenging chemistry problems. This course will integrate with topics covered in Chemistry 1610. The activities will be challenging and relevant to course material and groups will work to discuss, collaborate, and answer questions in the activity.  
Concur: 1610. Not open to students with credit for 1220 (123), 1620 (162), 1920H (202H), or 1250 (125). This course is graded S/U.

**1620 General Chemistry for Majors II** U 5

Continuation of 1610 for science majors, covering solutions, kinetics, chemical equilibrium, solubility and ionic equilibria, qualitative analysis, thermodynamics, electrochemistry, descriptive chemistry, coordination compounds, and nuclear chemistry.  
Prereq: 1210, 1215, 1250, 1610, 1910H, 122, 125, 162, or 202H, and Math Placement Level L or M; or a grade of C- or above in Math 1130 (130), 1131 (131), 1148 (148), or 1150 (150), or above, and enrollment in Chemistry or Biochemistry major; or permission of department. Not open to students with credit for 1220, 1920H, 2310, 2510 (251), 2610, 2910H (251H), 123, 163, or 203H. GE nat sci phys course.

**1622 Peer-led Team Learning for Chemistry 1620 students** U 1

Provides a structure with which students can work actively in groups of 6 to 8 peers on challenging chemistry problems. This course will integrate with topics covered in Chemistry 1620. The activities will be challenging and relevant to course material and groups will work to discuss, collaborate, and answer questions in the activity.  
Concur: 1620. Not open to students with credit for 2510, 2610, or 2910H. This course is graded S/U.

**1910H Honors General Chemistry I** U 5

Fundamental chemical principles and the chemistry of nonmetals for selected students.  
Prereq: ACT composite score of 30 or above, and ACT mathematics score of 30 or above, and ACT science reasoning score of 28 or above. Prereq or concur: Math 1141 or 1151 or above, or permission of instructor. Not open to students with credit for 1210 or 1610. GE nat sci phys course.

**1920H Honors General Chemistry II** U 5

Continuation of Chem 1910H for selected students covering fundamental principles and the chemistry of metals.  
Prereq: 1910H (202H). Not open to students with credit for 203H, 1220 or 1620. GE nat sci phys course. NS Admis Cond course.

**2193 Individual Studies** U 1 - 5

A qualified student may conduct a minor investigation in chemistry.  
Prereq: Satisfactory courses in field of the problem and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**2194 Group Studies** U 1 - 6

Designed for students to pursue special studies in chemistry.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.

**2210 Analytical Chemistry I: Quantitative Analysis** U 5

Quantitative chemical analysis for chemistry majors; quantitative analysis of the elemental and molecular composition of complex systems.  
Prereq: 1220 (123), 1620 (163), or 1920H (203H), and Math Placement Level L, or a grade of C- or above in Math 1148 and 1149, or 1130 (130), 1131 (131), or 1150 (150), or above. Not open to students with credit for 2210H (221H). GE data only course.

<b>2210H</b>	<b>Honors Analytical Chemistry I: Quantitative Analysis</b>	<b>U</b>	<b>5</b>
Honors version of quantitative chemical analysis for chemistry majors; quantitative analysis of the elemental and molecular composition of complex systems. Prereq: Honors standing, or permission of department or instructor; and 1220 (123), 1620 (163), or 1920H (203H), and Math Placement Level L, or a grade of C- or above in Math 1148 and 1149, or 1130 (130), 1131(131), or 1150 (150), or above. Not open to students with credit for 2210 (221). GE data only course.			
<b>2310</b>	<b>Introductory Organic Chemistry</b>	<b>U</b>	<b>4</b>
A condensed presentation of organic chemistry organized by functional groups with an emphasis on practical applications. Prereq: 1110, 1220 (122), 1250 (125), 1620, or 1920H. Not open to students with credit for 2310 (251), 2610, or 2910H.			
<b>2510</b>	<b>Organic Chemistry I</b>	<b>U</b>	<b>4</b>
Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkynes, alcohols, ethers, epoxides, aldehydes and ketones. Other topics include stereochemistry, acids, bases, and reaction mechanisms. Prereq: 1220 (123), 1620 or 1920H (203H). Not open to students with credit for 252.			
<b>2520</b>	<b>Organic Chemistry II</b>	<b>U</b>	<b>4</b>
Continuation from 2510, including aromatic systems, carboxylic acids, carboxylic acid derivatives, amines, carbon-carbon bond-forming reactions, polymers, carbohydrates and amino acids. Prereq: 2510, 2610 (252) or 2910H (252H). Not open to students with credit for 2620 (253) or 2920H.			
<b>2540</b>	<b>Organic Chemistry Laboratory I</b>	<b>U</b>	<b>2</b>
Introduction to spectroscopic characterization, scientific writing, computational chemistry, and the laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Prereq or concur: 2510, 2610 or 2910H.			
<b>2550</b>	<b>Organic Chemistry Laboratory II</b>	<b>U</b>	<b>2</b>
Introduction to spectroscopic characterization, scientific writing, computational chemistry, and the laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Prereq: 2540 or 2540H. Prereq or concur: 2520, 2620 or 2920H.			
<b>2610</b>	<b>Organic Chemistry for Majors I</b>	<b>U</b>	<b>4</b>
Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkynes, alcohols, ethers, epoxides, aldehydes and ketones. Other topics include stereochemistry, acids, bases, and reaction mechanisms. Prereq: 1220 (123), 1620 (163), or 1920H (203H); and Chemistry or Biochemistry major, or permission of Department. Not open to students with credit for 252.			
<b>2620</b>	<b>Organic Chemistry for Majors II</b>	<b>U</b>	<b>4</b>
Continuation from 2610, including aromatic systems, carboxylic acids, carboxylic acid derivatives, amines, carbon-carbon bond-forming reactions, polymers, carbohydrates and amino acids. Prereq: 2510 (252), 2610, or 2910H; and Chemistry or Biochemistry major, or permission of Department. Not open to students with credit for 2520 (253), or 2920H.			
<b>2910H</b>	<b>Honors Organic Chemistry I</b>	<b>U</b>	<b>4</b>
Honors introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkynes, alcohols, ethers, epoxides, aldehydes and ketones, including stereochemistry, acids, bases, and reaction mechanisms. Prereq: 1220 (123), 1620 (163), or 1920H (203H); Honors program or permission of department or instructor. Not open to students with credit for 2510, 2610, or 252H.			
<b>2920H</b>	<b>Honors Organic Chemistry II</b>	<b>U</b>	<b>4</b>
Continuation from 2910H, including aromatic systems, carboxylic acids, carboxylic acid derivatives, amines, carbon-carbon bond-forming reactions, polymers, carbohydrates and amino acids. Prereq: Honors standing, and 2910H (252H) or 252; or permission of department or instructor. Not open to students with credit for 2520, 2620, or 253H.			
<b>2990</b>	<b>Intro to Chemical Research</b>	<b>U</b>	<b>1</b>
A seminar course targeting chemistry majors focusing on the development of professional skills, conducting literature searches, writing research papers, and exploring careers and research options. Prereq: 1220, 1620, or 1920H, and English 1110.			
<b>3510</b>	<b>Inorganic Chemistry</b>	<b>U</b>	<b>3</b>
Introduction to the principles of inorganic structure and bonding, including molecular symmetry, atomic structure, ionic bonding, coordination complexes, magnetic properties, thermodynamics and reactivity, bioinorganic chemistry, and nanoparticles. Prereq: 2520 (253), 2620 (253), or 2920H (253H), or permission of instructor. Not open to students with credit for 652.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
A qualified student may conduct a minor investigation in chemistry. Prereq: Satisfactory courses in field of the problem and permission of instructor. Repeatable to a maximum of 15 cr hours or 5 completions. This course is graded S/U.			

<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 6</b>
Designed for students to pursue advanced special studies in chemistry. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>4300</b>	<b>Physical Chemistry I</b>	<b>U</b>	<b>3</b>
Quantum chemistry and chemical kinetics. Prereq: 2210 (221), 2510 (251), 2610, 2910H, or equiv, and Math 2153 (254), and Physics 1201 (113) or 1251 (133). Prereq or concur: Math 2255 (255). Not open to students with credit for 531.			
<b>4310</b>	<b>Physical Chemistry II</b>	<b>U</b>	<b>3</b>
Statistical mechanics, thermodynamics, and thermodynamic equilibrium. Prereq: 4300. Not open to students with credit for 532.			
<b>4410</b>	<b>Physical Chemistry Laboratory</b>	<b>U</b>	<b>3</b>
Quantitative measurements of chemical phenomena and the application of chemical principles to their interpretation. It is recommended that students complete 1 physical chemistry course before taking this course. Prereq or concur: 4200 (520) or 4300 (530). Not open to students with credit for 541.			
<b>4550</b>	<b>Inorganic Chemistry Laboratory</b>	<b>U</b>	<b>2</b>
Preparation and characterization of inorganic compounds employing a variety of synthetic techniques. Prereq: 3510 (651), or an undergraduate degree with Chem major, or permission of instructor. Not open to students with credit for 755.			
<b>4870</b>	<b>Analytical Chemistry II: Instrumental Analysis</b>	<b>U</b>	<b>3</b>
Applications of physico-chemical principles to problems in qualitative and quantitative chemical analysis. Prereq or concur: 4200 or 4300; or 520 or 530, and 541.			
<b>4880</b>	<b>Instrumental Analysis Laboratory</b>	<b>U</b>	<b>2</b>
Laboratory applications of physico-chemical principles to instrumental analysis. Prereq or concur: 4870 (587), or permission of instructor. Not open to students with credit for 588.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or creative activities in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 15 completions.			
<b>4998H</b>	<b>Honors Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Honors undergraduate research or creative activities in various topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 15 completions.			
<b>4999</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or creative activities in various topics, culminating in a research thesis and oral defense. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>4999H</b>	<b>Honors Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Honors undergraduate research or creative activities in various topics, culminating in a research thesis and oral defense. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 10</b>
Individual Studies. Prereq: Permission of instructor. Repeatable.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 10</b>
Group Studies. Prereq: Permission of instructor. Repeatable.			
<b>5230</b>	<b>Neurotransmitter Chemistry</b>	<b>U G</b>	<b>3</b>
Come and explore the natural and unnatural organic molecules involved in neurotransmission. Through the study of synthetic strategies, mechanistic principles, and the structural requirements for biological activity, students will investigate the chemical world of endogenous molecules, pharmaceuticals, and drugs of abuse. Recommended prereqs: Chem 2550, and Biochem 4511 or 5613. Prereq: 2520, 2620, or 2920H, and 2540; or Grad standing; or permission of instructor.			
<b>5240</b>	<b>Introduction to Protein Modeling</b>	<b>U G</b>	<b>3</b>
This course provides a practical introduction to the theory and methods of molecular modeling and computational chemistry as it pertains to modeling large biological molecules such as proteins. Hands-on experience will be obtained by all attendees in doing molecular mechanics and modeling dynamic systems (molecular dynamics). Recommended prereq: Biochem 4511. Prereq: A grade of C or above in 2520, 2620, or 2920H; or Grad standing; or permission of instructor.			
<b>5420</b>	<b>Spectroscopy of Organic Compounds</b>	<b>U G</b>	<b>1½</b>
Exploration of the use of spectroscopic techniques for the determination of the structure of organic molecules, including UV/vis, IR, NMR, and MS. Prereq: 2520 (253), 2620 (253), or 2920H (253H), or equiv. Not open to students with credit for 632.			

## 84 Chemistry

<b>5430</b>	<b>Carbohydrate Chemistry</b>	<b>U G</b>	<b>3</b>
Introduction to synthesis, conformation, and biological importance of carbohydrates and oligosaccharides, including nomenclature, protecting groups, glycoside synthesis, biosynthesis and biology, and NMR methods. Prereq: 2520 (253), 2620, or 2920H (253H), or equiv.			
<b>5440</b>	<b>Introduction to Computational Chemistry</b>	<b>U G</b>	<b>3</b>
Introduction to fundamental concepts in computational chemistry, including molecular modeling, molecular dynamics, and semi-empirical and ab initio calculations. Prereq: 2520 (253), 2620 (253), or 2920H (253H), or equiv. Not open to students with credit for 644.			
<b>5450</b>	<b>Practical NMR Spectroscopy</b>	<b>U G</b>	<b>1</b>
This course focuses on the application of NMR Spectroscopy to the structure determination and dynamics of primarily synthetic organic and organometallic products. The practical aspects of acquiring optimized, high-quality data are still beneficial for analysis of these spectra and will be presented as lectures and demonstrations. Prereq: 5420, or permission of instructor.			
<b>5520</b>	<b>Nanochemistry</b>	<b>U G</b>	<b>3</b>
Introduction to fundamental concepts of nanoscience, exploring strategies for complex assemblies of molecules and developing computational techniques for the investigation of nanotech structures. Prereq: 1220 (123), 1620 (163), or 1920H (203H), and permission of instructor. Not open to students with credit for 611.			
<b>6050</b>	<b>Modeling Instruction in Chemistry</b>	<b>G</b>	<b>4</b>
An inquiry-based course addressing both content learning and supporting pedagogy in chemistry instruction suitable for high school instructors implementing a modeling-based approach. Repeatable to a maximum of 12 or hrs.			
<b>6086</b>	<b>Advanced Chemistry Knowledge for Educators: Atomic Structure, Energy and Quantum Mechanics</b>	<b>G</b>	<b>5</b>
For professionals and educators seeking an advanced understanding of General Chemistry content knowledge with consideration of how this understanding informs teaching and learning in College Credit Plus Chemistry courses. Topics typically found in the first semester of General Chemistry will be investigated. Prereq: Enrollment in Advanced Chemistry Knowledge for Educators certificate program, or permission of instructor.			
<b>6087</b>	<b>Advanced Chemistry Knowledge for Educators: Bonding Models and States of Matter</b>	<b>G</b>	<b>4</b>
For professionals and educators seeking an advanced foundational and historical understanding of General Chemistry content knowledge with consideration of how this understanding informs teaching and learning in College Credit Plus Chemistry courses. Prereq: Enrollment in Advanced Chemistry Knowledge for Educators certificate program, or permission of instructor.			
<b>6088</b>	<b>Advanced Chemistry Knowledge for Educators: Kinetics, Thermodynamics, and Equilibrium</b>	<b>G</b>	<b>4</b>
For professionals and educators seeking an advanced foundational and historical understanding of General Chemistry content knowledge with consideration of how this understanding informs teaching and learning in College Credit Plus Chemistry courses. Prereq: Enrollment in Advanced Chemistry Knowledge for Educators certificate program, or permission of instructor.			
<b>6089</b>	<b>Advanced Chemistry Knowledge for Educators: Modern Applications &amp; Instrumental Analysis</b>	<b>G</b>	<b>5</b>
For professionals and educators seeking an advanced understanding of General Chemistry content knowledge with consideration of how this understanding informs teaching and learning in College Credit Plus Chemistry courses. Prereq: Enrollment in Advanced Chemistry Knowledge for Educators certificate program, or permission of instructor.			
<b>6110</b>	<b>Survey of Instrumental Methods</b>	<b>G</b>	<b>1½</b>
Introduction to instrumental analytical methods, including optical spectroscopy, mass spectrometry, surface spectrometry, microprobe methods, and separation science concepts relevant to chemical analysis. Not available for undergraduate credit.			
<b>6120</b>	<b>Analytical Data Treatment - Statistical and Numerical Analysis</b>	<b>G</b>	<b>1½</b>
Principles and practice of data acquisition, processing, and analysis in chemical research. Prereq: 4870 (587) or equiv. Not open to students with credit for 720.			
<b>6310</b>	<b>Fundamentals of Coordination Chemistry</b>	<b>G</b>	<b>1½</b>
Fundamental concepts of coordination chemistry, including properties, coordination number & isomerism, complex stability & the chelate effect, ligand substitution reactions, electron transfer, coordination chemistry & catalysis, magnetic phenomena.			
<b>6320</b>	<b>Synthetic Principles in Inorganic Chemistry</b>	<b>G</b>	<b>1½</b>
Synthesis, structure, and application of electron counting rules to organometallic clusters. Synthesis and structure of main group and transition metal hydrides. Applications in catalysis. Prereq: 3510 or equiv, or permission of instructor. Not open to students with credit for 753.			

<b>6330</b>	<b>Group Theory and Bonding</b>	<b>G</b>	<b>1½</b>
Introduction to groups and group representations, application to pi-bonding in organic molecules, molecular orbital theory, bonding in transition metal complexes, molecular vibrations, and electronic spectroscopy. Prereq: 3510 or equiv, or permission of instructor. Not open to students with credit for 851.			
<b>6340</b>	<b>Physical Methods in Inorganic Chemistry</b>	<b>G</b>	<b>1½</b>
Exploration of techniques for measuring structure and properties of small inorganic molecules and assemblies, including elemental composition, structural characterization, and physical properties. Prereq: 3510 or equiv, or permission of instructor. Not open to students with credit for 752.			
<b>6410</b>	<b>Basic Organic Reaction Mechanisms</b>	<b>G</b>	<b>1½</b>
Fundamental aspects of organic reaction mechanisms, including substitution & elimination reactions, alkene addition reactions, aromatic substitution, radical reactions, carbonyl chemistry, & pericyclic reactions. Not available for undergrad credit.			
<b>6420</b>	<b>Stereochemistry and Conformational Analysis</b>	<b>G</b>	<b>1½</b>
Fundamental principles of stereochemistry, including stereoisomerism, enantiomer resolution, conformational analysis of C-C and C-heteroatom bonds, cyclic stereochemistry, the stereochemistry of dynamic processes, and stereoelectronic effects. Prereq: 2520 (253), 2620 (253), 2920H, or equiv. Not open to students with credit for 730.			
<b>6430</b>	<b>Introduction to Organic Synthesis</b>	<b>G</b>	<b>1½</b>
Principles and reactions in the synthesis of organic molecules, acidity and basicity, chemistry of carbonyl groups, oxidation and reduction, electrophilic and nucleophilic reagents, functional group interconversions, and protecting group chemistry. Prereq: 2520, 2620, 2920H, or equiv. Not open to students with credit for both 832 and 833.			
<b>6440</b>	<b>Introduction to Physical Organic Chemistry</b>	<b>G</b>	<b>1½</b>
Fundamental principles and concepts in physical organic chemistry, including structure and bonding, strain and stability, solvation and non-covalent interactions, acid-base chemistry, and methods for studying reaction mechanisms. Prereq: 2520 (253), 2620 (253), 2920H, or equiv, and 4210 (521), 4310 (531), or equiv; or permission of instructor. Not open to students with credit for both 731 and 831.			
<b>6510</b>	<b>Quantum Mechanics and Spectroscopy</b>	<b>G</b>	<b>1½</b>
Introduction to the fundamentals of quantum mechanics with applications to chemical dynamics and spectroscopy, suitable for graduate students and advanced undergraduates from all areas of chemistry. Not available for undergraduate credit.			
<b>6520</b>	<b>Thermodynamics</b>	<b>G</b>	<b>1½</b>
Fundamental aspects of chemical thermodynamics, including spontaneous change, 1st, 2nd, and 3rd laws of thermodynamics, free energy, and thermochemical calculations. Prereq: 4310 (532) or equiv. Not open to students with credit for 775.			
<b>6530</b>	<b>Kinetics</b>	<b>G</b>	<b>1½</b>
Description of the rate of chemical reactions, including rate equations, mechanism, and transition state theory. Prereq: 4310 (532) or equiv. Not open to students with credit for 775.			
<b>6540</b>	<b>Introduction to Electronic Structure</b>	<b>G</b>	<b>1½</b>
Introduction to electronic structure of atoms and molecules, and quantum-chemical calculations, including self-consistent field methods, molecular orbital theory, density functional theory, and other methods for describing electron correlation. Prereq: 4310 or equiv. Not open to students with credit for 866.			
<b>6550</b>	<b>Atmospheric Chemistry</b>	<b>G</b>	<b>3</b>
Chemistry of the lower atmosphere, including air pollution and climate change, chemistry and kinetics of atmospheric oxidants, heterogeneous chemical mechanisms, tropospheric and stratospheric gas and particulate phases relative to ozone depletion. 231 or 251 recommended. Prereq: 1220 (123), 1620, 1920H, or equiv, and 4200, 4300, or equiv. Not open to students with credit for 641.			
<b>6780</b>	<b>Faculty Research Presentations</b>	<b>G</b>	<b>1</b>
Presentation of faculty research programs and projects to incoming doctoral students. Not available for undergraduate credit. This course is graded S/U.			
<b>6781</b>	<b>Laboratory Safety</b>	<b>G</b>	<b>1</b>
Principles of safety in the chemical laboratory. Prereq: Not open to students with credit for 685. This course is graded S/U.			
<b>6782</b>	<b>Ethics in Scientific Research</b>	<b>G</b>	<b>1</b>
An examination of the ethical principles operative in modern scientific research. This course is graded S/U.			
<b>6790</b>	<b>Scientific Writing</b>	<b>G</b>	<b>2</b>
A successful researcher is someone who knows both how to do their science, and also how to effectively communicate their findings through the written and spoken word. The purpose of this course is to introduce students to the processes involved in professional or scholarly publication. Prereq: Permission of instructor. Not open to students with credit for Micrbio 6790. Cross-listed in Microbio.			

<b>7120</b>	<b>Electrochemistry</b>	<b>G</b>	<b>3</b>
Electrochemical methods for trace analysis of species, including current/voltage relationships based on activation and diffusion control, electrode kinetics, and reaction mechanisms. Prereq: Not open to students with credit for 821.			
<b>7130</b>	<b>Fundamentals and Techniques of Separation Science</b>	<b>G</b>	<b>3</b>
Introductory course in analytical separation science: principles of chromatographic and electrophoretic processes. Prereq: Not open to students with credit for 822.			
<b>7140</b>	<b>Analytical Spectroscopy</b>	<b>G</b>	<b>3</b>
Principles for measurement of interactions of electromagnetic radiation with matter, including classical & quantum mechanical principles, group theory, and principles and applications of atomic and molecular spectroscopy. Prereq: Not open to students with credit for 823.			
<b>7150</b>	<b>Mass Spectrometry</b>	<b>G</b>	<b>3</b>
Advanced course on modern mass spectrometric methods and applications to chemical and biological sciences. Prereq: Not open to students with credit for 825.			
<b>7160</b>	<b>Nuclear Magnetic Resonance Spectroscopy</b>	<b>G</b>	<b>3</b>
Introduction to NMR spectroscopy for structural studies including nuclear magnetic resonance spectroscopy in the context of chemical and biochemical structural studies. Prereq: Not open to students with credit for 824.			
<b>7170</b>	<b>Analytical Surface Science</b>	<b>G</b>	<b>1½</b>
Introduction to instrumentation and techniques for the chemical and physical analysis of surfaces.			
<b>7230</b>	<b>Chemical Biology</b>	<b>G</b>	<b>1½</b>
Graduate-level treatment of the fundamentals of chemical biology, including enzymes, drug and probe design, diversification methodology, and proteomics.			
<b>7310</b>	<b>The Inorganic Chemistry of Bioinspired Energy Conversion</b>	<b>G</b>	<b>1½</b>
This course will give an overview of important energy conversion reactions in nature as well as those modeled chemically and discuss the implications of these processes in the context of environmental concerns. Fundamentals and applications of spectroscopic techniques that have been of particular utility for understanding the natural and model systems will also be covered.			
<b>7320</b>	<b>Organometallic Chemistry</b>	<b>G</b>	<b>1½</b>
Chemistry of organometallic compounds, main group elements (Li, Mg, Al, Sn, Pb), comparisons of Zn, Hg, & Mg, multiple bonding, transition metals, classification of ligands, pi-bonding, metallocenes, carbenes, carbynes, H <sub>2</sub> , and agostic complexes. Prereq: Not open to students with credit for 751.			
<b>7330</b>	<b>Solid State Chemistry</b>	<b>G</b>	<b>1½</b>
Structures of extended solids, including defects and phase diagrams and phase transitions. Prereq: Not open to students with credit for 754.			
<b>7340</b>	<b>Diffraction Methods</b>	<b>G</b>	<b>1½</b>
Exploration of techniques and application for determination of solid state structures, including X-ray absorption and diffraction methods, neutron diffraction methods, single crystal structure determination, and powder diffraction.			
<b>7350</b>	<b>Inorganic Photochemistry</b>	<b>G</b>	<b>1½</b>
Fundamental aspects of molecular photophysical processes, including energy and electron transfer, photochemistry of inorganic complexes, and applications.			
<b>7360</b>	<b>Bioinorganic Chemistry</b>	<b>G</b>	<b>1½</b>
Study of the role of metals in biological systems, including iron and copper proteins, other metals including Zn, Co, Ni, Mg, and Ca, metal ion homeostasis, metals and nucleic acids, and cellular toxicity and medical applications of heavy metals. Prereq: Not open to students with credit for 752.			
<b>7370</b>	<b>Nanochemistry and Nanomaterials</b>	<b>G</b>	<b>1½</b>
Advanced study of nanostructures and nanomaterials, including the basic physics for nanoscience and nanotechnology, synthesis and self-assembly, and nanotechnology in energy conversion and storage.			
<b>7380</b>	<b>Inorganic Materials</b>	<b>G</b>	<b>1½</b>
Study of the electronic and magnetic properties of extended solids, including organic and metal-organic arrays. Prereq: Not open to students with credit for 754.			
<b>7430</b>	<b>Advanced Organic Synthesis</b>	<b>G</b>	<b>1½</b>
Advanced aspects of organic synthesis/synthetic design, including advanced carbanion chemistry, synthesis of alkenes, special topics in oxidations and reductions, nucleophilic reagents, pericyclic and dipolar reactions, and free radical chemistry. Prereq: 6430.			
<b>7440</b>	<b>Kinetics, Catalysis, and Transition State Theory</b>	<b>G</b>	<b>1½</b>
Principles of kinetics, including energy surfaces and transition state theory, rate equations and rate constants, isotope effects, linear free energy relationships, and catalysis for the study of the chemical reactions of organic molecules. Prereq: 6440.			

<b>7450</b>	<b>Metals in Organic Synthesis</b>	<b>G</b>	<b>1½</b>
Organometallic complexes in organic synthesis, including organotransition metal chemistry and homogeneous catalysis and the chemistry of organic complexes of B, Cu, low valent Zr and Ti, Pd, Ni, Ru, and Mo. Prereq: 7430. Not open to students with credit for 832 or 833.			
<b>7460</b>	<b>Advanced Organic Reaction Mechanisms</b>	<b>G</b>	<b>1½</b>
Advanced study of physical aspects of reactions of organic compounds, including addition and elimination reactions, substitution reactions, photochemical reactions, and quantum mechanical approaches to chemical bonding. Prereq or concur: 7440. Not open to students with credit for 831.			
<b>7470</b>	<b>Computational Chemistry</b>	<b>G</b>	<b>1½</b>
A practical and theoretical treatment of advanced computational chemistry, from molecular mechanics to electronic structure methods and with an examination of the application of computational methods for providing guidance to experimental studies. Prereq: Permission of instructor. Not open to students with credit for 944.			
<b>7520</b>	<b>Advanced Molecular Quantum Mechanics and Spectra</b>	<b>G</b>	<b>3</b>
Advanced study of the quantum mechanics of atoms and molecules, including quantum postulates and operators, time evolution, perturbation theory and variational methods, calculation of matrix elements, representations, and multiplet theory. Prereq: Not open to students with credit for 862 or 863.			
<b>7530</b>	<b>Spectra and Structure of Molecules</b>	<b>G</b>	<b>3</b>
Application of quantum mechanics to the description and interpretation of molecular spectroscopic data, with an emphasis on the spectra of polyatomic molecules. Prereq: Not open to students with credit for 863 or 866.			
<b>7540</b>	<b>Chemical Dynamics</b>	<b>G</b>	<b>3</b>
Advanced chemical dynamics in the gas and condensed phase, including the fundamental theory of chemical reactions, molecular energy transfer, and electron and proton transfer reactions. Prereq: Not open to students with credit for 876.			
<b>7550</b>	<b>Statistical Thermodynamics</b>	<b>G</b>	<b>3</b>
Treatment of equilibrium & non-equilibrium stat mech, including fundamentals, statistical basis of thermodynamics, partition functions, thermal behavior of atoms & molecules, free energy, time-dependent stat mech, and linear response theory. Prereq: Not open to students with credit for 880.			
<b>7580</b>	<b>Lasers, Optics, and Optical Instrumentation</b>	<b>G</b>	<b>3</b>
Fundamentals of lasers, optics, and optical instrumentation used in modern experimental research in chemistry and physics including: lasing and gain, pulse generation, geometric and Gaussian optics, spatial modes, and detection.			
<b>7590</b>	<b>Molecular Simulation of Materials</b>	<b>G</b>	<b>3</b>
Advanced theoretical foundation and techniques for molecular dynamics and Monte Carlo simulation of condensed phases, including interaction models, dynamical foundations, equilibrium properties, biological systems, and transport coefficients. Prereq: Permission of instructor. Not open to students with credit for 996.			
<b>8199</b>	<b>Advanced Topics in Analytical Chemistry</b>	<b>G</b>	<b>1½ - 3</b>
Advanced, specialized topics in Analytical Chemistry. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions.			
<b>8399</b>	<b>Advanced Topics in Inorganic Chemistry</b>	<b>G</b>	<b>1½ - 3</b>
Advanced, specialized topics in Inorganic Chemistry. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions.			
<b>8499</b>	<b>Advanced Topics in Organic Chemistry</b>	<b>G</b>	<b>1½ - 3</b>
Advanced, specialized topics in Organic Chemistry. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions.			
<b>8599</b>	<b>Advanced topics in Physical Chemistry</b>	<b>G</b>	<b>1½ - 3</b>
Advanced, specialized topics in Physical Chemistry. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions.			
<b>8699</b>	<b>Advanced Topics in Theoretical Chemistry</b>	<b>G</b>	<b>1½ - 3</b>
Advanced, specialized topics in Theoretical Chemistry. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions.			
<b>8891</b>	<b>Analytical Chemistry Seminar</b>	<b>G</b>	<b>1</b>
Seminar in Analytical Chemistry. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			
<b>8892</b>	<b>Biochemistry Seminar</b>	<b>G</b>	<b>1</b>
Seminar in Biochemistry. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			
<b>8893</b>	<b>Inorganic Chemistry Seminar</b>	<b>G</b>	<b>1</b>
Seminar in Inorganic Chemistry. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			
<b>8894</b>	<b>Organic Chemistry Seminar</b>	<b>G</b>	<b>1</b>
Seminar in Organic Chemistry. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			

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<b>8895</b>	<b>Physical Chemistry Seminar</b>	<b>G</b>	<b>1</b>
Seminar in Physical Chemistry. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			
<b>8896</b>	<b>Departmental Seminar</b>	<b>G</b>	<b>1</b>
Seminars on topics of interest in chemistry and biochemistry. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			
<b>8899</b>	<b>Doctoral Seminar</b>	<b>G</b>	<b>1</b>
Seminar presented by post-candidacy doctoral students on thesis/dissertation research. Prereq: Post-candidacy graduate standing, and permission of instructor. Repeatable to a maximum of 2 cr hrs.			
<b>8998</b>	<b>Non-thesis Research</b>	<b>G</b>	<b>1 - 15</b>
Non-thesis graduate research. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Thesis/Dissertation Research</b>	<b>G</b>	<b>1 - 15</b>
Graduate research for thesis or dissertation. Repeatable. This course is graded S/U.			

## Chinese

<b>1101.01</b>	<b>Level One Chinese I: Classroom Track</b>	<b>U</b>	<b>4</b>
Mandarin Chinese spoken communication and writing system. Classroom Track. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Au Sem. Prereq: Not open to students with credit for 101 and 102. This course is available for EM credit. GE for lang course.			
<b>1101.51</b>	<b>Level One Chinese I: Individualized Track</b>	<b>U</b>	<b>1 - 4</b>
Mandarin Chinese spoken communication and writing system. Individualized Track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Au, Sp, Su Sem. Prereq: Not open to students with credit for 101 and 102. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.			
<b>1102.01</b>	<b>Level One Chinese II: Classroom Track</b>	<b>U</b>	<b>4</b>
Continuation of 1101.01. Classroom Track. Closed to native speakers of this language, or students with 3 or more years of study in this language in high school. Prereq: 1101.01 or 1101.02, or 4 cr hrs of 1101.51, or permission of instructor. Not open to students with credit for 102. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1102.51</b>	<b>Level One Chinese II: Individualized Track</b>	<b>U</b>	<b>1 - 4</b>
Continuation of 1101.51. Individualized Track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Prereq: 1101.01 or 1101.02, or 4 cr hrs of 1101.51, or permission of instructor. Not open to students with credit for 1102 (102). Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.01</b>	<b>Level Two Chinese I: Classroom Track</b>	<b>U</b>	<b>4</b>
Mandarin Chinese second level spoken communication, development of reading skills, and written composition. Classroom Track. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Prereq: 1102.01 or 1102.02, or 4 sem cr hrs of 1102.51, or permission of instructor. Not open to students with credit for 1103 or 104. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.51</b>	<b>Level Two Chinese I: Individualized Track</b>	<b>U</b>	<b>1 - 4</b>
Mandarin Chinese second level spoken communication, development of reading skills, and written composition. Individualized Track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Prereq: 1102.01 or 1102.02, or 4 cr hrs of 1102.51, or permission of instructor. Not open to students with credit for 1103 or 104. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>2102</b>	<b>Level Two Chinese II: Classroom Track</b>	<b>U</b>	<b>5</b>
Continuation of 1103. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Sp Sem. Prereq: 1103. Not open to students with credit for 2102 (205 and 206). This course is available for EM credit. FL Admis Cond course.			
<b>2141.01</b>	<b>Intensive Level Two Chinese-Oral: Classroom Track</b>	<b>U</b>	<b>4</b>
First course in the sequence of intensive intermediate Chinese language courses focusing on speaking and listening. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Au Sem. Prereq: 1102.01 or 1102.02, or 4 cr hrs in 1102.51, or permission of instructor. Not open to students with credit for 1103.xx, 2141.02, 210, 210.02, 310, or 310.02. This course is available for EM credit. GE for lang course. FL Admis Cond course.			

<b>2141.02</b>	<b>Intensive Level Two Chinese-Oral: Summer Intensive Track</b>	<b>U</b>	<b>4</b>
First course in the sequence of intensive intermediate Chinese language courses focusing on speaking and listening. Admission to SPEAC is required for registration. Students must complete 4 credits during first 3.5 weeks to the summer session. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Prereq: 1102.01 or 1102.02, or 4 cr hrs for 1102.51, or permission of instructor. Not open to students with credit for 1103 (210) or 2141 (310). This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>2151.01</b>	<b>Intensive Level Two Chinese-Written: Classroom Track</b>	<b>U</b>	<b>5</b>
First in the sequence of intensive intermediate Chinese language courses focusing on written Chinese. Classroom track. Au sem. Prereq: 1102.01 or 1102.02, or 4 cr hrs for 1102.51, or permission of instructor. Not open to students with credit for 1103 (211) or 2151 (311.01). This course is available for EM credit. FL Admis Cond course.			
<b>2151.51</b>	<b>Intensive Level Two Chinese-Written: Individualized Track</b>	<b>U</b>	<b>1 - 5</b>
First in the sequence of intensive intermediate Chinese language courses focusing on written Chinese. Individualized track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Closed to native speakers of this language, or to students with 3 or more years of study in this language in high school. Au, Sp, Su. Prereq: 1102.01 or 1102.02, or 4 cr hrs for 1102.51, or permission of instructor. Not open to students with credit for 1103 (211) or 2151 (311). Repeatable to a maximum of 5 cr hrs or 5 completions. This course is available for EM credit. FL Admis Cond course.			
<b>2231</b>	<b>Traditional Chinese Culture</b>	<b>U</b>	<b>3</b>
Chinese institutions, philosophical trends, religion, literature, and visual and performing arts prior to the 20th century. Prereq: Not open to students with credit for 231. GE cultures and ideas and diversity global studies course.			
<b>2232</b>	<b>Modern Chinese Culture</b>	<b>U</b>	<b>3</b>
Modern Chinese culture as reflected in family life, language, literature, art, and film viewed from the perspective of modern Chinese history. Taught in English. Prereq: Not open to students with credit for 232. GE cultures and ideas and diversity global studies course.			
<b>2283</b>	<b>Chinese Calligraphy</b>	<b>U</b>	<b>3</b>
Techniques of writing Chinese characters with a brush; practice in different styles from oracle bone to grass; introduction to its importance in the Chinese culture, and its relationship with Chinese philosophy, poetry, and painting. Prereq: Not open to students with credit for 283.			
<b>2451</b>	<b>Chinese Literature in Translation</b>	<b>U</b>	<b>3</b>
Representative masterpieces of pre-modern Chinese literature in English translation, including poetry, prose, fiction, and/or drama. Prereq: Not open to students with credit for 251. GE lit and diversity global studies course.			
<b>2797.01</b>	<b>Study Abroad in China</b>	<b>U</b>	<b>3</b>
The China Gateway Study Abroad Program introduces the dynamic nature of an important segment of contemporary Chinese culture by combining the themes of Ethnic Diversity and the Environment in Southwest China. The tandem themes are designed to allow students to experience a diverse and dynamic mix of ethnic, rural, and urban cultures in a historic and geographically varied region of China. GE education abroad course.			
<b>4101</b>	<b>Level Three Chinese I</b>	<b>U</b>	<b>5</b>
Continued study of spoken communication, reading Chinese publications, and development of written composition. Au Sem. Prereq: 2102, or permission of instructor. Not open to students with credit for 507 or 508. This course is available for EM credit. FL Admis Cond course.			
<b>4102</b>	<b>Level Three Chinese II</b>	<b>U</b>	<b>5</b>
Continuation of 4101. Sp Sem. Prereq: 2141.01, or permission of instructor. Not open to students with credit for 508 or 509. This course is available for EM credit. FL Admis Cond course.			
<b>4142.01</b>	<b>Intensive Level Three Chinese-Oral: Classroom Track</b>	<b>U</b>	<b>5</b>
Continuation of 2141.01. Sp Sem. Prereq: 2141.01 or 2141.02, or permission of instructor. Not open to students with credit for 310 and 510.01. This course is available for EM credit. FL Admis Cond course.			
<b>4142.02</b>	<b>Intensive Level Three Chinese-Oral: Summer Intensive Track</b>	<b>U</b>	<b>5</b>
Continuation of 2141.02. Summer Intensive Track. Admission to SPEAC is required for registration. Students must complete 5 credits during the second 3.5 weeks of the Summer Session. Prereq: 2141.01 or 2141.02, or permission of instructor. Not open to students with credit for 310 and 510.02. This course is available for EM credit. FL Admis Cond course.			
<b>4152.01</b>	<b>Intensive Level Three Chinese-Written: Classroom Track</b>	<b>U</b>	<b>5</b>
Continuation of 2151.01. Sp Sem. Prereq: 2151.01, or 4 cr hrs or 2151.51, or permission of instructor. Not open to students with credit for 311.01, 511.01, 5 qtr cr hrs of 311.51, or 5 qtr cr hrs of 511.51. This course is available for EM credit. FL Admis Cond course.			



<b>4152.51</b>	<b>Intensive Level Three Chinese-Written: Individualized Track</b>	<b>U</b>	<b>1 - 5</b>
Continuation of 2151.51. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Au, Sp, Su Sems. Prereq: 2151.01, or 4 cr hrs for 2151.51, or permission of instructor. Not open to students with credit for 311 or 511. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is available for EM credit. FL Admis Cond course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Directed study to meet individual research needs of students in Chinese studies. Not a substitute for regular language courses. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group investigation of issues in Chinese studies. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4301</b>	<b>Conversational Cantonese for Mandarin Speakers I</b>	<b>U</b>	<b>3</b>
A conversational Cantonese language course for speakers of Mandarin, and is open to both advanced learners and native speakers of Mandarin Chinese. The course develops basic skills in speaking and listening comprehension for functioning in everyday, Cantonese-speaking environments. Not open to native speakers of Cantonese, or to students with 2 or more years of study in Cantonese in high school.			
<b>4302</b>	<b>Conversational Cantonese for Mandarin Speakers II</b>	<b>U</b>	<b>3</b>
The second semester of conversational Cantonese language for speakers of Mandarin, and is open to both advanced learners and native speakers of Mandarin Chinese. The course develops basic skills in speaking and listening comprehension for functioning in everyday, Cantonese-speaking environments. Not open to native speakers of Cantonese, or to students with 2 or more years of high school Cantonese. Prereq: 4301, or equiv knowledge of conversational Cantonese.			
<b>4380</b>	<b>The Chinese Language</b>	<b>U</b>	<b>3</b>
Important elements of the Chinese language -- its structure, dialects, writing system -- as well as history of the language, language acquisition, language planning, and language use in society; taught in English. Prereq: 1102 or equiv, or permission of instructor. Not open to students with credit for 580.			
<b>4383</b>	<b>The Chinese Language and Its Script</b>	<b>U</b>	<b>3</b>
Examination of the Chinese script, covering its origin, classification, composition, and development, as well as such topics as standardization, script reform, romanization, and internet language; taught in English. Prereq: 1102 or equiv, or permission of instructor.			
<b>4402</b>	<b>Traditional Chinese Fiction in Translation</b>	<b>U</b>	<b>3</b>
Examines novels and short stories from the Ming and Qing dynasties. Taught in English. Prereq: Not open to students with credit for 502. GE lit and diversity global studies course.			
<b>4403</b>	<b>Modern Chinese Literature in Translation</b>	<b>U</b>	<b>3</b>
Chinese fiction and/or drama from the late 19th century to the present. Taught in English. Prereq: Not open to students with credit for 503. GE lit and diversity global studies course.			
<b>4404</b>	<b>Chinese Drama</b>	<b>U</b>	<b>3</b>
Representative works of Chinese drama in translation, taught with a focus either on premodern drama or on modern drama, depending on the instructor's area of interest and expertise. Taught in English. Prereq: Not open to students with credit for 504. GE lit and diversity global studies course.			
<b>4405</b>	<b>China in Chinese Film</b>	<b>U</b>	<b>3</b>
An overview of Chinese cinema, with a focus on how film represents issues of nationhood, national identity, and national trauma. Taught in English, no Chinese required. Prereq: English 1110 or equiv. Not open to students with credit for 505. GE VPA and diversity global studies course.			
<b>4407</b>	<b>Eco-literature in China</b>	<b>U</b>	<b>3</b>
Addresses changing conceptions of the environment in China as expressed in oral and written literature.			
<b>4998</b>	<b>Undergraduate Research Project</b>	<b>U</b>	<b>3</b>
Focused research toward completion of an original project. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research Project</b>	<b>U</b>	<b>3</b>
Focused research toward completion of an original project. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>3</b>
Focused research toward completion of an original thesis. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>3</b>
Focused research toward completion of an original thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			

<b>5101.01</b>	<b>Level Four Chinese I: Classroom Track</b>	<b>U G</b>	<b>3</b>
Level Four Chinese; continuation of 4102, or 4142 and 4152. Classroom Track. Au Sem. Prereq: 4152.01; and 4102 or 4142.01 or 4142.02 or 4 cr hrs for 4152.51, or permission of instructor. Not open to students with credit for 610 and 611.01. This course is available for EM credit. FL Admis Cond course.			
<b>5101.51</b>	<b>Level Four Chinese I: Individualized Track</b>	<b>U G</b>	<b>1 - 3</b>
Level Four Chinese; continuation of 4102, or 4142 and 4152. Individualized Track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Prereq: 4152.01; and 4102 or 4142.01 or 4142.02 or 4 cr hrs for 4152.51, or written permission of instructor. Not open to students with credit for 610 or 611.51. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is available for EM credit. FL Admis Cond course.			
<b>5102.01</b>	<b>Level Four Chinese II: Classroom Track</b>	<b>U G</b>	<b>3</b>
Level Four Chinese: continuation of 5101.01. Sp Sem. Prereq: 5101.01, or 3 cr hrs for 5101.51, or permission of instructor. Not open to students with credit for 611 or 612.01. This course is available for EM credit. FL Admis Cond course.			
<b>5102.51</b>	<b>Level Four Chinese II: Individualized Track</b>	<b>U G</b>	<b>1 - 3</b>
Level Four Chinese: continuation of 5101.51. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement. Au, Sp, Su Sems. Prereq: 5101.01, or 3 cr hrs for 5101.51, or permission of instructor. Not open to students with credit for 611 and 612. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is available for EM credit. FL Admis Cond course.			
<b>5103</b>	<b>Level Five Chinese I</b>	<b>U G</b>	<b>3</b>
Level five Chinese first semester. Immersion in all four skills using the novel and TV series "Spring Grass" by Qiu Shanshan. Covers 1st half of book and TV series. Focuses on oral narration skills. Chinese only. Prereq: 5102 or equiv. This course is available for EM credit.			
<b>5104</b>	<b>Level Five Chinese II</b>	<b>U G</b>	<b>3</b>
Level five Chinese second semester. Completing the novel and TV series "Spring Grass"; focus on written composition skills. Chinese only. Completion of this class (or equivalent) required for taking master's level Chinese language classes. Prereq: 5103 or equiv. This course is available for EM credit.			
<b>5105.51</b>	<b>Selected Readings in Scholarly Chinese Texts I: Individualized Track</b>	<b>U G</b>	<b>1 - 3</b>
Academic writings by modern Chinese scholars in both Wenyan and Baihua styles. Prereq: 5102.01 or 5102.51, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 4 completions.			
<b>5106.51</b>	<b>Selected Readings in Scholarly Chinese Texts II: Individualized Track</b>	<b>U G</b>	<b>1 - 3</b>
Continuation of 5105.01 or 5105.51. Academic writings by modern Chinese scholars in both Wenyan and Baihua styles. Prereq: 5105.01 or 5105.51, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 4 completions.			
<b>5111</b>	<b>Classical Chinese I</b>	<b>U G</b>	<b>3</b>
Analysis of selected texts in classical Chinese from pre-Qin times. Prereq: Level Two Chinese or equiv, or permission of instructor. Not open to students with credit for 601 and 602.			
<b>5112</b>	<b>Classical Chinese II</b>	<b>U G</b>	<b>3</b>
Continuation of 5111. Close reading of selected texts from pre-Qin and later times. Prereq: 5111, or equiv and permission of instructor. Not open to students with credit for 602 and 603.			
<b>5194</b>	<b>Und/Grad Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group investigation of issues in Chinese studies designed for a mix of undergraduate and graduate students. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>5380</b>	<b>Introduction to Chinese Linguistics</b>	<b>U G</b>	<b>3</b>
Investigation of the phonology, morphology, syntax, semantics, lexicon, and writing system of the Chinese language; and exploration of some topics relating language to cognition, society, and gender. Prereq: Permission of instructor. Not open to students with credit for 680.			
<b>5381</b>	<b>History of the Chinese Language</b>	<b>U G</b>	<b>3</b>
Investigation of the history of the Chinese language from its early stages to modern forms. Prereq: 6380, or permission of instructor. Not open to students with credit for 681.			
<b>5383</b>	<b>The Chinese Writing System</b>	<b>U G</b>	<b>3</b>
Origin, classification, composition, and development of the Chinese writing system; exploration of related topics such as language reform, reading and processing of Chinese characters. Prereq: 6380, or permission of instructor. Not open to students with credit for 683.			
<b>5389</b>	<b>Topics on the Chinese Language</b>	<b>U G</b>	<b>3</b>
Exploration of topics and issues concerning the Chinese language -- language and society, language and politics, language and gender, language and identity, bilingualism, languages of China; taught in English. Prereq: 1102 or equiv, or permission of instructor. Repeatable to a maximum of 3 cr hrs.			

## 88 Chinese

<b>5400</b>	<b>Performance Traditions of China</b>	<b>U G</b>	<b>3</b>
Introduction to the panorama of oral and orally-connected performance traditions of China; explores local traditions of professional storytelling, epic singing, folksongs, and local drama. Prereq: 2231, 2232, 2451, 2452, EALL 1231, Japanese 2231, 2451, 2452, Korean 2231, 2451, or permission of instructor. Not open to students with credit for 600.			
<b>5474</b>	<b>Chinese Opera</b>	<b>U G</b>	<b>3</b>
Introduction to Chinese opera as traditional culture, dramatic literature, and performing art; selected opera scripts and stage performances from Beijing opera, Kunqu, and regional operas; illustrated discussions of various aspects of the theater. Prereq: Not open to students with credit for 674.			
<b>5490</b>	<b>Chinese Translation Workshop</b>	<b>U G</b>	<b>1 - 4</b>
Investigation of problems and techniques of translating Chinese into English. Prereq: 4102 or 5112, or permission of instructor. Repeatable to a maximum of 8 cr hrs or 2 completions.			
<b>5670</b>	<b>Literary Language in Modern Mandarin</b>	<b>U G</b>	<b>3</b>
Level seven Chinese. Use of literary Chinese in modern speech and writing. Chinese only. Prereq: Permission of Instructor. This course is available for EM credit.			
<b>5798.02</b>	<b>Study Tour: Foreign</b>	<b>U G</b>	<b>8 - 24</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Repeatable for different titled study tours only. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 3 completions.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Directed study to meet individual research needs of students in Chinese studies. Not a substitute for regular language courses. Prereq: 4102 or 5112, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group investigation of issues in Chinese studies. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>6451</b>	<b>History of Chinese Literature I</b>	<b>G</b>	<b>3</b>
Chinese literature from antiquity to the end of the Tang dynasty; various aspects of the classical tradition and new developments in the Age of Disunity. Taught in English. Partial texts in Chinese optional. Prereq: Written permission of instructor for undergrads. Not open to students with credit for 651.			
<b>6452</b>	<b>History of Chinese Literature II</b>	<b>G</b>	<b>3</b>
Chinese literature from the Five Dynasties to the Qing; poetry, prose, drama, and the rise of vernacular writings. Taught in English. Partial texts in Chinese optional. Prereq: Written permission of instructor for undergrads. Not open to students with credit for 652.			
<b>6998</b>	<b>Research in Chinese: Project</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of a project other than a conventional MA thesis. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>6999</b>	<b>Research in Chinese: Thesis</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of an MA thesis. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>7382</b>	<b>Chinese Phonology</b>	<b>G</b>	<b>3</b>
The phonetics and phonology of modern (Mandarin) Chinese; study of other Chinese dialects for comparative purposes. Prereq: 6380; or permission of instructor.			
<b>7384</b>	<b>Chinese Syntax</b>	<b>G</b>	<b>3</b>
The syntactic structure of modern (Mandarin) Chinese; related topics such as syntax-semantics interface. Prereq: 6380; or permission of instructor.			
<b>7385</b>	<b>Chinese Dialects</b>	<b>G</b>	<b>3</b>
Investigation of the linguistic structures of major Chinese dialects from a cross-dialectal, comparative approach; related topics in multilingualism, language planning, language contact, code-switching, vernacular literacy and dialect-writing. Prereq: 6380; or permission of instructor.			
<b>7463</b>	<b>Modern Chinese Fiction</b>	<b>G</b>	<b>3</b>
Introduction to the history of Chinese fiction from the late Qing to 1949. Prereq: 6451, 6452; or permission of instructor. Not open to students with credit for 763.			
<b>7466</b>	<b>Lu Xun</b>	<b>G</b>	<b>3</b>
Readings in the essays, prose poetry, and fiction of Lu Xun. Prereq: 7463; or permission of instructor.			
<b>7467</b>	<b>Taiwan Literature</b>	<b>G</b>	<b>3</b>
Introduction to the literature of Taiwan from 1900 to the present. Prereq: 6451, 6452, 7463; or permission of instructor.			

<b>7470</b>	<b>Ethnic Literature and Culture in China</b>	<b>G</b>	<b>3</b>
Examines poetry, prose, and other cultural expressions related to ethnic minority groups in China. Prereq: 6451, 6452, or 7463, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7615</b>	<b>Chinese Perspectives on Chinese Civilization</b>	<b>G</b>	<b>3</b>
Level seven Chinese. Mainstream Chinese perspectives on major issues in Chinese civilization. Commonly recognized ways to presenting viewpoints and arguments on relevant topics. Chinese only. Prereq: 5104 or equiv. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>7617</b>	<b>Analysis of Contemporary Chinese Media</b>	<b>G</b>	<b>3</b>
Level six Chinese. Developing familiarity with major contemporary Chinese media and the ability to analyze chosen topics from a specific medium. Chinese only. Prereq: 5104 or equiv. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>7650</b>	<b>Negotiating in Chinese Culture</b>	<b>G</b>	<b>3</b>
Level Seven Chinese. Chinese in spontaneous professional discourse, emphasizing oral presentation based on readings in Chinese business practices and professional negotiation. Prereq: 5104, or permission of instructor. Not open to students with credit for 750. This course is available for EM credit.			
<b>7655</b>	<b>Language in China</b>	<b>G</b>	<b>3</b>
Level six Chinese. Language issues in China, including language variation, writing systems, minority languages, and Chinese language issues in the information age. Chinese only. Prereq: 5104 or equiv. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>7660</b>	<b>Interpersonal Relations and Professional Networking</b>	<b>G</b>	<b>3</b>
Level six Chinese. Exploration of assumptions and expectations motivating behaviors in Chinese and American cultures when developing interpersonal relations and professional networks. Prereq: 5104 or equiv. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>7671.51</b>	<b>Familiarity with Domain Resources and Research</b>	<b>G</b>	<b>5</b>
Level five Chinese. Individualize research with mentor. Development of research topic. Chinese only. Prereq: 5106 or equiv. Not open to students with credit for 771.51. This course is available for EM credit. This course is progress graded.			
<b>7672.51</b>	<b>Domain Research and Presentation of a Project</b>	<b>G</b>	<b>5</b>
Level six Chinese. Individualize research with mentor. Development of research project. Chinese only. Prereq: 5104 or equiv. Not open to students with credit for 772.51. This course is available for EM credit. This course is progress graded.			
<b>8500</b>	<b>Chinese Bibliography and Research Methods</b>	<b>G</b>	<b>3</b>
An introduction to bibliographies and reference works in Chinese Studies; general and specific problems for research. Prereq: Not open to students with credit for 800.			
<b>8897</b>	<b>Departmental Seminar</b>	<b>G</b>	<b>1 - 3</b>
Seminar in Chinese literature, linguistics, or pedagogy; topic varies. Prereq: 5111 or 5112; or 6451 or 6452; or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>8998</b>	<b>Research in Chinese: Project</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of a project other than a conventional dissertation. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Chinese: Dissertation</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of a dissertation. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 8 completions. This course is graded S/U.			

## City and Regional Planning

<b>1100</b>	<b>CRP Survey</b>	<b>U</b>	<b>1</b>
Introduction to the University, the Knowlton School of Architecture and the professions of architecture, city and regional planning, and landscape architecture. Prereq: Not open to students with credit for 1100, 100, Arch 1100 (100), 1100E, 100H, LArch 1100 (100), 1100E, or any survey course. Cross-listed in Arch and LArch.			
<b>2000</b>	<b>Introduction to City and Regional Planning</b>	<b>U</b>	<b>3</b>
How transportation, housing, and land use work together to create vibrant cities and regions. Prereq: Not open to students with credit for 310.			
<b>2100</b>	<b>Reading the City through History and Law</b>	<b>U</b>	<b>3</b>
An intensive investigation of cities' complex cultures and societal rules and the role of history and law in shaping their development. Prereq: Not open to students with credit for 210 and 350.			

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<b>2110</b>	<b>Creating Innovative Cities and Regions</b>	<b>U</b>	<b>3</b>
Successful cities rely on innovation to keep them forward-moving. Emerging trends and unmet market needs are studied to generate innovative planning solutions. Prereq: Not open to students with credit for 2110H or 110.			
<b>2210</b>	<b>Sustainable Urbanism</b>	<b>U</b>	<b>3</b>
Globalization is changing cities, economies, social networks, and the environment. Technological innovation, entrepreneurship, and policy making guides the future of sustainable cities. Prereq: Not open to students with credit for 2210E.			
<b>2210E</b>	<b>Sustainable Urbanism</b>	<b>U</b>	<b>3</b>
Globalization is changing cities, economies, social networks and the environment. Technological innovation, entrepreneurship and policy making guides the future of sustainable cities. Prereq: Honors standing. Not open to students with credit for 2210.			
<b>2600</b>	<b>Designing Communication for Planning</b>	<b>U</b>	<b>4</b>
Graphic tools and techniques used for effective visual communication in planning. Projects focus on creative problem solving to communicate planning to a mass audience.			
<b>2630</b>	<b>Planning for Future Cities</b>	<b>U</b>	<b>3</b>
Cities are constantly evolving over time as new forms of technology, governance, and other factors occur. Students will explore Utopian concepts, learn how to help cities develop in a positive way, be familiar with current and emerging technology trends that affect cities, and gain inspiration from the many variations of futuristic cities envisioned in the science fiction genre.			
<b>2700</b>	<b>Technology in Design</b>	<b>U</b>	<b>1 - 5</b>
Software tools, information theory, and technology to aid in preparing for the professional planning workplace. Repeatable to a maximum of 20 cr hrs or 4 completions.			
<b>2798</b>	<b>Comparative Studies in Planning</b>	<b>U</b>	<b>3</b>
Planning issues are global in context. Through direct experience studying globalization, migration, sustainability, and public participation, critically understand planning on a global and community scale. Repeatable to a maximum of 9 cr hrs.			
<b>3000</b>	<b>Planning Resilient Environments</b>	<b>U</b>	<b>3</b>
Environmental resilience requires a comprehensive planning approach. Through planning techniques and practices, identify practical applications for creating resilient environments. Prereq: Math 1148 (148), or permission of instructor. Not open to students with credit for 745 or 722.			
<b>3100</b>	<b>Analyzing the City</b>	<b>U</b>	<b>3</b>
Spatial, economic, and demographic tools aid in forecasting the future of cities and regions. These tools serve as a foundation for imagining the future. Prereq: 3000, Econ 2001.01, and Math 1118 (117), 1131, 1151, or above; or permission of instructor. Not open to students with credit for 3100H.			
<b>3150</b>	<b>Digital Design and Analysis for Planners</b>	<b>U</b>	<b>2</b>
Basic principles of computer drafting and Geographic Information Systems (GIS) and their application in the professional planning office for the purpose of design, analysis, and representation of the built environment.			
<b>3194</b>	<b>Group Studies in City and Regional Planning</b>	<b>U</b>	<b>1 - 15</b>
Group-based study of city and regional planning topics within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>3200</b>	<b>Place Making</b>	<b>U</b>	<b>4</b>
Vibrant public places and sustainable communities are realized when planners visualize and understand spatial relationships at the site, neighborhood and community level. Prereq: 1100 (110), 1100E, 2000 (310), 2110, 2110E, Arch 1100 (100), 1100E, 100H, LArch 1100 (100), or 1100E, or permission of instructor. Not open to students with credit for 3200E or 330.			
<b>3200E</b>	<b>Place Making</b>	<b>U</b>	<b>4</b>
Vibrant public places and sustainable communities are realized when planners visualize and understand spatial relationships at the site, neighborhood and community level. Prereq: Honors standing, and 1100 (110), 1100E, 2000 (310), 2110, 2110E, Arch 1100 (100), 1100E, 100H, LArch 1100 (100), or 1100E; or permission of instructor. Not open to students with credit for 3200 (330).			
<b>3300</b>	<b>Planning for and with People</b>	<b>U</b>	<b>3</b>
Application of skills and techniques of community participation, emphasizing education, group formation and dynamics, consultation, engagement, and creative change within groups. Prereq: 2000 (310), 2110 (110), or 2110H (110H), or permission of instructor.			
<b>3400</b>	<b>Planning for Sustainable Economic Development</b>	<b>U</b>	<b>3</b>
Understand the intersection of economics, the environment, and development in order to use planning tools to promote sustainable economic development. Prereq: Econ 2001.01, 2001.02 (200), 2001.03H, or AEDecon 2001.			

<b>3500</b>	<b>The Socially Just City</b>	<b>U</b>	<b>3</b>
Too many cities are split between the haves and the have-nots. Explore how to reduce poverty, increase access to public services, and create a high quality of life for all residents. GE soc sci orgs and politics and diversity soc div in the US course.			
<b>3510</b>	<b>Murder by Design</b>	<b>U</b>	<b>3</b>
The way cities are designed influences criminal activity. Crime mapping, siting of businesses, and neighborhood design are explored to create safescapes. Prereq: Jr standing.			
<b>3550</b>	<b>Environmental Planning and Policy for a Sustainable Future</b>	<b>U</b>	<b>3</b>
This course has been designed to incorporate environmental considerations into land use planning and policy making. Upon completion of this course students should be able to analyze environmentally related planning problems not requiring in-depth environmental expertise and recognize when such expertise is necessary. Prereq: 2110.			
<b>3600</b>	<b>Land Development Planning</b>	<b>U</b>	<b>3</b>
Planners shape cities. The land development process requires understanding the impacts of new development and redevelopment in order to reimagine more vibrant sites. Prereq: Not open to students with credit for 745 or 780.			
<b>3610</b>	<b>Sex and the City</b>	<b>U</b>	<b>3</b>
Explores sex in the city, examining spaces, institutions, and policies that influence sex as a land use.			
<b>3620</b>	<b>The Underground City</b>	<b>U</b>	<b>3</b>
If the surface of the Earth became uninhabitable, people could be forced to live underground to survive. A plan will be conceived and developed in order to perpetuate the human race. Prereq: 2630 or 3000.			
<b>4110</b>	<b>Transportation and Land Use Planning</b>	<b>U</b>	<b>3</b>
Communities integrate transportation while promoting economic development and land-use policies to manage growth. Improve the efficiency of travel and contain infrastructure costs. Prereq: 2110 (110), 2110H, 2000, or 310. Not open to students with credit for 774.			
<b>4191S</b>	<b>Planning Internship</b>	<b>U</b>	<b>1</b>
Internship seminar providing students with an opportunity to reflect and learn about career opportunities in city and regional planning. Prereq: Permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>4193</b>	<b>Independent Studies in City and Regional Planning</b>	<b>U</b>	<b>1 - 15</b>
Study a specialized topic in city and regional planning with an instructor based on mutual interests. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in City and Regional Planning</b>	<b>U</b>	<b>1 - 15</b>
Group-based study of city and regional planning topics within the frame of an instructor guided course. Prereq: Jr or Sr standing. Repeatable to a maximum of 15 cr hrs or 4 completions.			
<b>4200</b>	<b>Arts and Entertainment Planning</b>	<b>U</b>	<b>3</b>
Planning for arts and entertainment districts, from the neighborhood art studio to entire cities as entertainment destinations.			
<b>4597</b>	<b>The Global Environment in Planning</b>	<b>U</b>	<b>3</b>
A review of challenges in developed and developing countries, examining planning issues associated with economic development, social equity, growth and rural development. Prereq: Not open to students with credit for 597. GE cross-disciplinary seminar course.			
<b>4674</b>	<b>The City as Art</b>	<b>U</b>	<b>3</b>
This course will examine the ways that cities throughout the world integrate arts and culture into their planning, as well as whether being a cultural city can build the brand, draw new residents and attract visitors. We will investigate cultural tourism, urban cultural policy and temporary built culture such as festivals and fairs. Team-taught with faculty in ArtEduc. Prereq: Jr or Sr standing. Not open to students with credit for ArtEduc 4674. Cross-listed in ArtEduc.			
<b>4780</b>	<b>Undergraduate Research Methods</b>	<b>U</b>	<b>3</b>
Quantitative, qualitative and design methods for undergraduate level city and regional planning research.			
<b>4780H</b>	<b>Undergraduate Research Methods</b>	<b>U</b>	<b>3</b>
Quantitative, qualitative and design methods for undergraduate level city and regional planning research. Honors section. Prereq: Honors standing.			
<b>4798</b>	<b>Planning Study Abroad</b>	<b>U</b>	<b>1 - 15</b>
Rapid globalization of cities creates new opportunities to explore, investigate and analyze urban development internationally. Repeatable to a maximum of 15 cr hrs or 2 completions.			

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<b>4798E</b>	<b>Study Tour</b>	<b>U</b>	<b>1 - 15</b>
Group international and domestic travel programs opportunities tailored to complement the classroom experience. Prereq: Honors standing. Repeatable to a maximum of 45 cr hrs or 3 completions.			
<b>4900E</b>	<b>Plan Making</b>	<b>U</b>	<b>6</b>
Plan creation focuses on working with real-world clients. Planning knowledge and skills will be applied to generate creative, innovative, and practical solutions. Prereq: Honors standing, and acceptance into CRPlan BS major; or permission of instructor. Concur: 3300. Not open to students with credit for 4900S.			
<b>4900S</b>	<b>Plan Making</b>	<b>U</b>	<b>6</b>
Plan creation focuses on working with real-world clients. Planning knowledge and skills will be applied to generate creative, innovative, and practical solutions. Prereq: Acceptance into CRPlan BS major, or permission of instructor. Concur: 3300. Not open to students with credit for 4900E.			
<b>4910S</b>	<b>Realizing the Plan</b>	<b>U</b>	<b>6</b>
Apply knowledge and skills to an implementation challenge. Work in consultation with professionals to produce a regulation, policy, or tool for use by the client. Prereq: 4900S (510) or 4900E, or permission of instructor.			
<b>4950</b>	<b>Professional Planning Skills Development</b>	<b>U</b>	<b>3</b>
Professional skills including technical writing, public speaking, portfolio development, conflict resolution, and contracts as essential preparation for practice. Prereq: 4900S (510) or 4900E, and acceptance to the CRPlan BS major; or permission of instructor. Not open to students with credit for 610. Repeatable to a maximum of 15 cr hrs.			
<b>4999</b>	<b>Undergraduate Thesis in City and Regional Planning</b>	<b>U</b>	<b>6</b>
Development of topical research/design projects with an interdisciplinary perspective. Prereq: Permission of instructor.			
<b>4999H</b>	<b>Undergraduate Thesis in City and Regional Planning</b>	<b>U</b>	<b>6</b>
Course allows for development of topical research/design projects with an interdisciplinary perspective. Prereq: Honors standing, and 4780H.			
<b>5001</b>	<b>Introduction to GIS for Planning</b>	<b>U G</b>	<b>4</b>
The course introduces basic principles and techniques of Geographic Information System (GIS) in city and regional planning. The course focuses on developing hands-on experience of GIS applications in planning. It is also designed to cultivate spatial thinking and help students to gain an understanding of cutting-edge geospatial technologies, their capabilities, uses, and limitations for planning. Prereq: Not open to students with credit for CivilEn 5400 or Geog 5210.			
<b>5010</b>	<b>Historic Preservation Planning</b>	<b>U G</b>	<b>3</b>
Cities are rich in history. Policies, incentives and planning aid in preserving unique historic character and heritage of cities. Prereq: Sr or Grad standing. Not open to students with credit for Arch 604.			
<b>5100</b>	<b>Technology in Design</b>	<b>U G</b>	<b>1 - 5</b>
Software tools, information theory, and technology to aid in preparing for the professional planning workplace. Repeatable to a maximum of 20 cr hrs or 4 completions.			
<b>5160</b>	<b>Green Building Methods for Planning</b>	<b>U G</b>	<b>1</b>
This course focuses on green building methods, techniques and practices and how they can be applied to city planning practice. Particular attention is paid to LEED-certification, a program that recognizes building practices that save money, reduce water consumption, make better material choices, have higher property values, and overall have fewer negative impacts on the environment. This course is graded S/U.			
<b>5170</b>	<b>Planning &amp; Zoning in Local Government</b>	<b>U G</b>	<b>1</b>
The purpose of this course is to learn about how city planning and zoning are used as practical tools for municipal governance. This course will explore topics from the perspective of what local elected and appointed leaders need to know to effectively guide a municipality, navigate codes and laws, and promote public engagement and civil discourse. This course is graded S/U.			
<b>5180</b>	<b>TechniCity</b>	<b>U G</b>	<b>3</b>
The way we understand cities is undergoing sweeping transformation, right along with the analytical tools we use to design our cities and the communication tools we use to engage people. Absorbing, studying and understanding the role of technology from a critical viewpoint allows us to generate creative ideas for improving our cities. Prereq: Jr, Sr, or Grad standing.			
<b>5191</b>	<b>Professional Experience in City and Regional Planning</b>	<b>U G</b>	<b>0</b>
Professional practice in the field of city and regional planning or suitable related areas. Prereq: Permission of instructor. Repeatable to a maximum of 6 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in City and Regional Planning</b>	<b>U G</b>	<b>1 - 15</b>
Group-based study of City and Regional Planning topics within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 4 completions.			

<b>5200</b>	<b>Metropolitan and Regional Planning</b>	<b>U G</b>	<b>3</b>
Cities and towns are becoming increasingly dependent on each other. Progressive approaches to regional planning directly influence the economy and quality of life. Prereq: Sr or Grad standing. Not open to students with credit for 753.			
<b>5300</b>	<b>Airport Planning, Design and Development</b>	<b>U G</b>	<b>3</b>
A comprehensive study of airport planning, design and development, the role of the airport and its components as part of the overall air transportation system, the issues related to the planning, design, and development of the airport and its system. Prereq: Aviatn 3000 or CRPlan 3100; or Sr standing in CivilEn major; or Grad standing; or permission of instructor. Cross-listed in Aviatn and CivilEn.			
<b>5320</b>	<b>Transportation Data Analytics for Planners</b>	<b>U G</b>	<b>3</b>
In this course, students will analyze data for the purpose of planning transportation infrastructure. Students will build expertise in innovative transportation data collection (such as drones), improve familiarity with publicly available transportation data sources, develop basic R coding skills to visualize transportation data, and consider careers as transportation planning analysts. Prereq: Jr, Sr, or Grad standing.			
<b>5400</b>	<b>Planning for Housing</b>	<b>U G</b>	<b>3</b>
Housing - including its uses, meaning, design, and role. The creation of a range of housing to support growth and revitalization of cities and regions. Prereq: Not open to students with credit for 320, 752, or PubAfrs 5400. Cross-listed in PubAfrs.			
<b>5461</b>	<b>Latino Urbanism and the Reinvention of the American City</b>	<b>U G</b>	<b>3</b>
Interdisciplinary course that examines a new trend of urbanism based on the urban experiences of Latinos and the study of this group's social, economic, and cultural impact on cities across the US. Taught in English. Team-taught course. Prereq: Completion of 2nd GE Writing course, and Jr or Sr standing; or permission of instructor. Not open to students with credit for 4461 or Spanish 4461 or 5461. Cross-listed in Spanish.			
<b>5500</b>	<b>Energy Planning</b>	<b>U G</b>	<b>3</b>
Energy makes cities run, from renewable and non-renewable sources. Energy is a driving opportunity and constraint in urban development. Prereq: Grad standing, or 3000. Not open to students with credit for 720.			
<b>5550</b>	<b>Financing Sustainability</b>	<b>U G</b>	<b>3</b>
This course examines sustainability through the lens of financing. The primary foci are two important elements of green infrastructure - food systems and clean energy. Students will explore the systems and industry behind food and energy and develop comprehensive road maps that communities can use to build robust and financially supported supported sustainability systems for food and energy. Prereq: CRPlan 3400, Grad standing, or permission of instructor.			
<b>5670</b>	<b>Creative Place Marketing</b>	<b>U G</b>	<b>1</b>
This course introduces the idea of creative placemaking and creative place marketing, explores issues in place marketing and introduces students to key considerations for developing place marketing plans, cultural tourism strategies, and other initiatives that improve the quality and economics of place through arts and culture. Emotional aspects of place and social justice issues are also covered. This course is graded S/U.			
<b>5700</b>	<b>Urban Transportation Demand Forecasting</b>	<b>U G</b>	<b>3</b>
Introduction and applications for quantitative demand forecasting in urban transportation. Prereq: Math 1118 or equiv, or Grad standing. Not open to students with credit for 775 or CivilEn 5700 (775). Cross-listed in CivilEn.			
<b>5798</b>	<b>Planning Study Abroad</b>	<b>U G</b>	<b>1 - 15</b>
Rapid globalization of cities creates new opportunities to explore, investigate and analyze urban development internationally. Repeatable to a maximum of 15 cr hrs or 2 completions.			
<b>5880</b>	<b>Interdepartmental Seminar</b>	<b>U G</b>	<b>1 - 15</b>
Interdepartmental seminar; topics to be announced. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in Arch and LArch.			
<b>5890</b>	<b>Workshop in City and Regional Planning</b>	<b>U G</b>	<b>1 - 15</b>
Workshop on city and regional planning issues. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5900</b>	<b>Food System Planning and the Economy</b>	<b>U G</b>	<b>3</b>
Examines the social, environmental and economic costs and benefits of our food production, distribution, and consumption. Prereq: Not open to students with credit for AEDEcon 5900 or PubAfrs 5900. Cross-listed in AEDEcon and PubAfrs.			
<b>5960</b>	<b>Design Competition</b>	<b>U G</b>	<b>1 - 6</b>
Interdisciplinary teams develop design proposals to solve problems in the natural or built environment. Prereq: Jr, Sr, or Grad standing. Repeatable to a maximum of 9 cr hrs or 3 completions. Cross-listed in Arch and LArch.			

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<b>5997</b>	<b>Planning in the Developing World</b>	<b>U G</b>	<b>3</b>
What changes when we take our plans to the developing world? This course will lead you from Brazil to Nigeria to India to find out - with lots of stops in between. It combines historical and global perspectives on international development theory with real-world case studies that will force you to consider difficult tradeoffs and make tough choices.			
<b>6000</b>	<b>Historical Foundations of Planning</b>	<b>G</b>	<b>3</b>
The people, movements, and principles which have shaped contemporary planning practice. Historical successes and failures mean for the future of planning. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 643.			
<b>6010</b>	<b>Innovation in City and Regional Planning</b>	<b>G</b>	<b>3</b>
Successful cities are innovative and forward-thinking. Challenges students to focus on generation of truly innovative ideas to improve cities and regions. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 742.			
<b>6080</b>	<b>Advanced GIS for Professional Planning Practice</b>	<b>G</b>	<b>4</b>
In-depth and hands-on training in GIS applications for city and regional planning. Prereq: 5001 and Grad standing, or permission of the instructor. Not open to students with credit for 608 or 609.			
<b>6100</b>	<b>Participation and Advocacy in Planning</b>	<b>G</b>	<b>3</b>
Planning theories that support the planner's role in engaging and advocating for the public. Skills in public engagement techniques and tools. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 712.			
<b>6150</b>	<b>Environmental Planning and Policy for a Sustainable Future</b>	<b>G</b>	<b>3</b>
This course incorporates environmental considerations into land use planning and policy making. Upon completion of this course students will be able to analyze environmentally related planning problems not requiring in-depth environmental expertise and recognize when such expertise is necessary.			
<b>6191S</b>	<b>Professional Development</b>	<b>G</b>	<b>1</b>
Provides successful candidates with a broad but intensive learning experience in various areas of city and regional planning. The program is designed to prepare individuals for professional planning positions. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>6193</b>	<b>Independent Studies in City and Regional Planning</b>	<b>G</b>	<b>1 - 12</b>
Study a specialized topic in City and Regional Planning with an instructor based on mutual interests. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies in City and Regional Planning</b>	<b>G</b>	<b>1 - 15</b>
Group-based study of City and Regional Planning topics within the frame of an instructor guided course. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>6200</b>	<b>Graphic Visualization</b>	<b>G</b>	<b>4</b>
Fundamental skills in graphics and graphic technology commonly used in planning, including on-line, print, document, poster, and video layout and design. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 702.			
<b>6300</b>	<b>Law and Planning I: Land Use</b>	<b>G</b>	<b>3</b>
The impact of law on planning, with an emphasis on the regulation of land use. Prereq: Grad standing, or permission of the instructor. Not open to students with credit for 761.			
<b>6310</b>	<b>Law and Planning II: Environment and Society</b>	<b>G</b>	<b>3</b>
The role of social and environmental justice and other societal considerations in the establishment of a legal framework in planning. Prereq: 6300 (761), and Grad standing; or permission of instructor. Not open to students with credit for 765 or 766.			
<b>6350</b>	<b>The Socially Just City</b>	<b>G</b>	<b>3</b>
Poverty reduction, access to public services and improving quality of life are goals to achieving the socially just city. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 3500.			
<b>6400</b>	<b>Site Planning and Development</b>	<b>G</b>	<b>4</b>
Effective site planning can lead to the development of a strong community. Learn the design, environmental and infrastructure elements that are needed to generate a feasible development project. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 745.			
<b>6410</b>	<b>Planning for Sustainable Development</b>	<b>G</b>	<b>3</b>
Sustainable development is a broad concept; translated into reality through relevant theory and the implementation of key design, policy and project based solutions. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 724.			

<b>6411</b>	<b>Sustainability, Measurement and Power</b>	<b>G</b>	<b>3</b>
Indicators drive decisions and inform action. This course introduces students to the history, theory and practice of measuring sustainability, with a focus on the metropolitan environment. Students will come to understand the relationship between sustainability, measurement and governance, analyzing and comparing specific indicators within their institutional, political and social contexts. Prereq: Grad standing.			
<b>6420</b>	<b>Infrastructure Planning</b>	<b>G</b>	<b>3</b>
Infrastructure development plans address the planning, budgeting and programming challenges of making cities run. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 783.			
<b>6425</b>	<b>Measuring Resilience to Disasters for Planning</b>	<b>G</b>	<b>3</b>
This course focuses on concepts, elements, theory, and applications for resilience to disasters in urban and regional planning. Students will develop quantitative analytical skills in resilience assessment through various methods, including resilience indicators, cost-benefit analysis, econometric analysis, and simulation analysis. Prereq: Grad standing, or permission of instructor.			
<b>6430</b>	<b>Urban Design</b>	<b>G</b>	<b>3</b>
Vibrant cities contribute to quality of life, through urban design and urban form. Site analysis, context sensitive design and impacts of design choices are explored. Prereq: Grad standing, or permission of the instructor. Not open to students with credit for 731.			
<b>6440</b>	<b>Research Methods for Urban Design and Planning</b>	<b>G</b>	<b>3</b>
Behavioral research and evaluation (research design, validity, reliability, data gathering techniques) methods for urban design and planning questions. Prereq: Grad standing, or permission of the instructor. Not open to students with credit for 734.			
<b>6460</b>	<b>Real Estate Finance for Planners</b>	<b>G</b>	<b>3</b>
Realize plans by understanding the financial mechanisms to fund projects. Explore how public-private partnerships create opportunities for affordable housing, downtown revitalization, and neighborhood improvement. Prereq: Grad standing, or permission of instructor. Cross-listed in PubAfrs.			
<b>6500</b>	<b>Plan Making and Analysis Techniques</b>	<b>G</b>	<b>3</b>
Collection and analysis of information used to make plans, including population projections and economic activity. Prereq: Grad standing, or permission of instructor.			
<b>6500.02</b>	<b>Data and Forecasting for Planning</b>	<b>G</b>	<b>2</b>
Models and methods used in the analysis and projection of population and employment, and the major data sources for such analyses, including data shortcomings and problems of comparability. The use of data and projection methodologies by planners, with an emphasis on translating results into policy implications that are understandable by the non-technical reader. Prereq: Permission of instructor.			
<b>6600</b>	<b>Evaluation Methods in City and Regional Planning</b>	<b>G</b>	<b>3</b>
City and regional planners routinely plan and evaluate public sector interventions which generally take the form of physical infrastructure projects or public policies and programs. This course offers an overview of the concepts, methods, and metrics used to anticipate the impact and evaluate the trade offs of proposed projects, policies, and programs. Prereq: Grad standing, or permission of instructor.			
<b>6610</b>	<b>Grant Writing in the Public Sector</b>	<b>G</b>	<b>3</b>
Public officials rely on grants to help fund their grand plans. Planners find grants, prepare proposals, and manage grants to effectively support public projects. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 837 or PubPolM/PubAfrs 880.06. Cross-listed in PubAfrs 7501.			
<b>6620</b>	<b>Project Management in the Public Sector</b>	<b>G</b>	<b>3</b>
Public officials recognize the importance of project management in organization success. Management of complex, high-risk, high-visibility public projects is examined. Prereq: Grad standing, or permission of instructor. Cross-listed in PubAfrs 7555.			
<b>6700</b>	<b>Technology in Design</b>	<b>G</b>	<b>1 - 5</b>
Software tools, information theory, and technology to aid in preparing for the professional planning workplace. Repeatable to a maximum of 20 cr hrs or 4 completions.			
<b>6750</b>	<b>Resolving Social Conflict</b>	<b>G</b>	<b>3</b>
Multidisciplinary examination of social conflict, its dynamics and negotiated and consensual resolution; offers broad-based framework for diagnosing and managing conflict; applied to legal, environmental, organizational, and geopolitical conflicts. Prereq: Grad standing, or permission of instructor.			
<b>6798</b>	<b>Planning Study Abroad</b>	<b>G</b>	<b>1 - 15</b>
The world is rapidly globalizing. Exploring global cities provides a rich perspective that can be used to evaluate domestic and international planning challenges. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>6890</b>	<b>Workshop in City and Regional Planning</b>	<b>G</b>	<b>1 - 15</b>
Workshop on city and regional planning issues. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			

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<b>6910</b>	<b>Comprehensive Planning Studio</b>	<b>G</b>	<b>6</b>
Application of knowledge and skills to a comprehensive planning process in consultation with professionals to produce a plan for use by a real world client. Prereq: 6400 (745) and 6500 (762), or permission of instructor. Not open to students with credit for 853.			
<b>6920</b>	<b>Urban Design/Physical Planning Studio</b>	<b>G</b>	<b>6</b>
Improvement of the aesthetics of the built environment through the creation of a physical plan for a portion of a city using an integrative process to solve planning challenges. Course cannot be taken concurrently with other studio courses (6930, 6950, 6960, or 6970). Prereq: 6430 (731), or permission of instructor. Not open to students with credit for 851.			
<b>6930</b>	<b>Neighborhood Planning Studio</b>	<b>G</b>	<b>6</b>
Planning for neighborhoods engages residents and local non-profit organizations to empower them to solve planning challenges using democratic methods. Course cannot be taken concurrently with other studio courses (6920, 6950, 6960, or 6970). Prereq: 6400 (745) and 6500 (762), or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6950</b>	<b>Transportation Studio</b>	<b>G</b>	<b>6</b>
Planning for transportation requires an examination of environmental, social, and economic factors, as well as active engagement of decision makers and transportation users alike. Course cannot be taken concurrently with other studio courses (6920, 6930, 6960, or 6970). Prereq: 6400 (745) and 6500 (762), or permission of instructor. Not open to students with credit for 852.			
<b>6960</b>	<b>Sustainability Studio</b>	<b>G</b>	<b>6</b>
Planning for sustainability requires systems thinking, strategic solutions and collaborative governance. Sustainability plans will be generated through active engagement with a client community. Course cannot be taken concurrently with other studio courses (6920, 6930, 6950, or 6970). Prereq: 6410 (724), and Grad standing, or permission of instructor. Not open to students with credit for 824.			
<b>6970</b>	<b>International Development Studio</b>	<b>G</b>	<b>6</b>
Cities and regions across the globe are rapidly urbanizing and are facing planning challenges. Plan development focuses on developing context-sensitive solutions. Course cannot be taken concurrently with other studio courses (6920, 6930, 6950, or 6960). Prereq: 6400 (745) and 6500 (762), or permission of instructor. Not open to students with credit for 749.			
<b>6999</b>	<b>Research for Thesis in City and Regional Planning</b>	<b>G</b>	<b>1 - 12</b>
Research for Thesis in City and Regional Planning. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is progress graded (S/U).			
<b>7000</b>	<b>Contemporary Planning Research</b>	<b>G</b>	<b>3</b>
Introduction and overview of topics and techniques in planning research. Prereq: Grad standing. Not open to students with credit for 871.01.			
<b>7100</b>	<b>City &amp; Regional Planning Theory</b>	<b>G</b>	<b>3</b>
Critical inquiry into the dominant theories related to city and regional planning research and practice. Prereq: Grad standing. Not open to students with credit for 864.01.			
<b>7110</b>	<b>Development Theory</b>	<b>G</b>	<b>3</b>
Critical inquiry into the classic debates and critiques of development theory related to planning research and practice in developing countries. Prereq: Grad standing.			
<b>7194</b>	<b>Group Studies in City and Regional Planning</b>	<b>G</b>	<b>1 - 15</b>
For group-based study of city and regional planning topics within the frame of an instructor guided course. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7300</b>	<b>Planning Dissertations and Theses from Start to Finish</b>	<b>G</b>	<b>3</b>
Covers the full dissertation/thesis process: topic selection, refinement, proposal development, literature review, methods, data collection/analysis, presenting and publishing, getting a job, life on the job. Prereq: Enrollment in the City and Regional Planning PhD program, or permission of instructor.			
<b>7509</b>	<b>Disasters: Preparedness and Response</b>	<b>G</b>	<b>3</b>
Introduction to planning, policy, and management issues that arise when disaster strikes, and the roles of government, non-profits, communities, and individuals in emergency preparedness by examining a variety of recent natural and human-made disasters, both in the U.S. and abroad. Cross-listed in PubAfrs.			
<b>7531</b>	<b>Economic Development Policy</b>	<b>G</b>	<b>3</b>
Takes a practical approach to the legal, policy, and business issues related to urban redevelopment. Students gain a legal perspective as they investigate business and public policy issues surrounding redevelopment in our urban core. Prereq: Not open to students with credit for PubAfrs 880.02. Cross-listed in PubAfrs.			

<b>8193</b>	<b>Independent Studies in City and Regional Planning</b>	<b>G</b>	<b>1 - 15</b>
Study a specialized topic in City and Regional Planning with an instructor based on mutual interests. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in City and Regional Planning</b>	<b>G</b>	<b>1 - 15</b>
Group-based study of City and Regional Planning topics within the frame of an instructor guided course. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8200</b>	<b>Teaching Practicum in City and Regional Planning</b>	<b>G</b>	<b>0 - 9</b>
A hands on teaching experience in conjunction with a city and regional planning faculty member. Includes syllabus development, course preparation, lecture, discussion experience, and grading review. Prereq: Grad standing. Not open to students with credit for 990.			
<b>8300</b>	<b>General Practicum in City and Regional Planning</b>	<b>G</b>	<b>0 - 9</b>
Supervised field experience in city and regional planning; analysis and critique of field experience. Prereq: Grad standing. Not open to students with credit for 990.			
<b>8999</b>	<b>Research for Dissertation in City and Regional Planning</b>	<b>G</b>	<b>1 - 15</b>
Research for Doctoral Dissertation Purposes. Prereq: Enrollment in the City and Regional Planning PhD program. Repeatable to a maximum of 32 cr hrs or 10 completions. This course is graded S/U.			

## Civil Engineering

<b>2050</b>	<b>Probabilistic Applications and Data Interpretation in Civil and Environmental Engineering</b>	<b>U</b>	<b>3</b>
Fundamentals of probability and statistical analysis for applications and data interpretation in Civil and Environmental Engineering design and analysis. Prereq: Enrollment in CivilEn or EnvEng major.			
<b>2060</b>	<b>Numerical Analysis Methods for Civil and Environmental Engineering Applications</b>	<b>U</b>	<b>4</b>
Implement numerical solution techniques using computer programming in MATLAB and apply them to a variety of problems related to Civil Engineering. Prereq: 2050 or Stat 3450, 3460, or 3470; and Math 2173, 2177, 2255, or 2415; and enrollment in CivilEn or EnvEng major.			
<b>2090</b>	<b>Professional Aspects of Civil and Environmental Engineering</b>	<b>U</b>	<b>1</b>
Topics in Civil and Environmental Engineering ethics and practice. Must be taken as soon as possible upon entering the major. Prereq: Enrollment in CivilEn or EnvEng major. Not open to students with credit for 460 or EnvEng 460. Cross-listed in EnvEng.			
<b>2193</b>	<b>Individual Studies in Civil Engineering</b>	<b>U</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Civil Engineering</b>	<b>U</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>2405</b>	<b>Computer Graphics for Civil Engineers</b>	<b>U</b>	<b>1</b>
An introductory course in graphics with emphasis on the application on computer generated graphics to the solution of civil engineering problems. AutoCAD and Civil 3D or similar software to be used. Prereq: Enrollment in pre-CivilEn program, or permission of instructor. Not open to students with credit for Engr 4410.01 or FABEng 3171.			
<b>2410</b>	<b>Introduction to Surveying</b>	<b>U</b>	<b>3</b>
An introduction to surveying and geomatics, with an emphasis on basic spatial data collection and construction layout using ground-based measurement techniques. Must be taken as soon as possible upon entering the major. Prereq or concur: 2050 or Stat 3450, 3460, or 3470; and enrollment in CivilEn or EnvEng major.			
<b>2810</b>	<b>Construction Engineering and Management: An Introduction</b>	<b>U</b>	<b>3</b>
Basic engineering and management concepts of construction operations of various foundations, concrete, and steel buildings and bridges. Prereq: Enrollment in CivilEn major. Not open to students with credit for 682.			
<b>3080</b>	<b>Economic Evaluation and Optimization in Civil and Environmental Engineering</b>	<b>U</b>	<b>3</b>
Fundamentals of engineering economics and optimization for civil and environmental engineering planning and design. Prereq or concur: 2060 (406), and enrollment in CivilEn or EnvEng major. Not open to students with credit for 576 or EnvEng 576. Cross-listed in EnvEng.			

<b>3130</b>	<b>Fluid Mechanics</b>	<b>U</b>	<b>3</b>
An introduction to fluid mechanics; topics include: fluid properties; fluid statics; flow concepts; continuity, energy, and momentum equations; dimensional analysis; basic pipe flow; lab experiments. Prereq: MechEng 2010 or 2040, and enrollment in CivilEn, EnvEng, or FABEng major; or permission of instructor.			
<b>3160</b>	<b>Water Resources Engineering</b>	<b>U</b>	<b>3</b>
Pipe systems, introduction to open channel flow, basic hydrology, demographic studies, water supply, and wastewater flows. Prereq: 3130 (413) or EnvEng 413; and CSE 1221 (205) or 1222 (202) or EnGraph 167 or Engr 1221 or 1222 or 1281H or Engineer; and enrollment in CivilEn or EnvEng major. Not open to students with credit for 516 or EnvEng 516.			
<b>3310</b>	<b>Structural Engineering Principles</b>	<b>U</b>	<b>3</b>
Structural forms and loads, statically determinate structures, and trusses, internal loadings developed, influence lines for statically determinate structures, cables and arches, elastics beam deflections, energy methods. Prereq: MechEng 2020, and enrollment in CivilEn major. Prereq or concur: 2050 or Stat 3450, 3460, or 3470; or permission of instructor.			
<b>3510</b>	<b>Civil Engineering Materials</b>	<b>U</b>	<b>3</b>
Composition and Characterization of civil engineering materials - concretes, asphalts, plastics, fiber-reinforced composites; elastic, plastic, visco-elastic, and failure characterization under various environmental and mechanical loading conditions. Prereq or concur: 2050 or Stat 3450 or 3460 or 3470, and MechEng 2020, and enrollment in CivilEn major; or permission of instructor.			
<b>3540</b>	<b>Geotechnical Engineering</b>	<b>U</b>	<b>2</b>
The properties of soils as construction materials (e.g., for earth dams) and as foundations for building are introduced and state-of-the-art numerical techniques for the prediction of seepage and settlement are presented. Contemporary issues such as the impact of soil failure mechanisms and sustainability are covered. Prereq: MechEng 2020 or 2040, and enrollment in CivilEn or EnvEng or FABEng major. Concur: CivilEn 3541. Prereq or concur: CivilEn 2050 or Stat 3450, 3460, or 3470; or permission of instructor.			
<b>3541</b>	<b>Geotechnical Engineering Laboratory</b>	<b>U</b>	<b>1</b>
Laboratory determination of soil properties including grain size distribution, plasticity, permeability, compaction and shear strength (both drained and undrained). Course must be taken concurrently with 3540, 5561, or 5571. The 3541 course requirement may be waived in 5561 and 5571 by the instructor, if the student demonstrates previous completion of a similar lab program. Concur: 3540, 5561, or 5571.			
<b>3700</b>	<b>Transportation Engineering and Analysis</b>	<b>U</b>	<b>3</b>
Introduction to mathematical analysis and design of various transportation engineering topics: scheduled services, sight distance, geometric design, freeway capacity, traffic flow and queuing, signalized intersections. Prereq: 2050 or Stat 3450, 3460, or 3470, and enrollment in CivilEn major; or permission of instructor.			
<b>4001</b>	<b>Civil Engineering Capstone I</b>	<b>U</b>	<b>2</b>
Part 1 of the two semester course sequence for the culminating design component in the curriculum for students in Civil Engineering. Must be taken in semester preceding 4002, with sequence completed as close to graduation as possible. Prereq: 2050 or Stat 3450, 3460, or 3470; and CivilEn 2060, 2405, 2410, 2810, 3080, 3130, 3160, 3310, 3510, 3541, 3700, and 4320 or 4350, and EnvEng 3200; and enrollment in CivilEn major. Not open to students with credit for 4000.01.			
<b>4002</b>	<b>Civil Engineering Capstone II</b>	<b>U</b>	<b>2</b>
Part 2 of the two semester course sequence for the culminating design component in the curriculum for students in Civil Engineering. Must be taken in semester immediately following 4001, with sequence completed as close to graduation as possible. Prereq: 4000.01 or 4001. Not open to students with credit for 4000.02.			
<b>4011</b>	<b>Civil Engineering Global Capstone I</b>	<b>U</b>	<b>2</b>
Part 1 of a two semester course sequence satisfying the culminating design component in the curriculum for students in Civil Engineering set in a global development context. Must be taken in sequence with CivilEn 4012, taken as close to graduation as possible. Prereq: 2410, 2810, 3080, 3130, 3160, 3310, 3510, 3540, 3541, 3700, 4320 or 4350, and EnvEng 3200; or permission of instructor.			
<b>4012</b>	<b>Civil Engineering Global Capstone II</b>	<b>U</b>	<b>2</b>
Part 2 of a two semester course sequence satisfying the culminating design component in the curriculum for students in Civil Engineering set in a global development context. Must be taken in semester immediately following CivilEn 4011 with sequence taken as close to graduation as possible. Prereq: 4011, and Sr standing; or permission of instructor.			
<b>4191.01</b>	<b>Civil Engineering Internship I</b>	<b>U</b>	<b>1</b>
An engineering work experience with an approved employer for minimum of 10 hours per week for approximately 15 weeks. Typically taken during the autumn or spring academic terms. To earn credit students must demonstrate satisfactory work performance, complete monthly reporting requirements and submit a final report. Prereq: Enrollment in the Civil Engineering major, and permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			

<b>4191.02</b>	<b>Civil Engineering Internship II</b>	<b>U</b>	<b>2</b>
An engineering work experience with an approved employer for minimum of 30 hours per week for approximately 15 weeks. Typically taken during the summer academic term. To earn credit students must demonstrate satisfactory work performance, complete monthly reporting requirements and submit a final report. Prereq: Enrollment in the Civil Engineering major, and approval of the Civil Engineering Internship Advisor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies in Civil Engineering</b>	<b>U</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Civil Engineering</b>	<b>U</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4210</b>	<b>The Physics of Sustainable Buildings</b>	<b>U</b>	<b>3</b>
Equips students to understand and properly model the drivers of energy consumption and human exposure to airborne pollutants in buildings. Overview of the physical laws governing transport processes in buildings. Methods of modeling these processes that are specific to buildings, including energy balances, mass balances and their constituents. Prereq: 3130 and Math 2174, 2177, or 2415; or permission of instructor.			
<b>4310</b>	<b>Structural Analysis</b>	<b>U</b>	<b>3</b>
Deflection in trusses, beams, and frames. Solution of Indeterminate Structures by methods of consistent deformations and moment distribution. Beam and truss analysis using stiffness method. Prereq: 3310 (431). Not open to students with credit for 531.			
<b>4320</b>	<b>Structural Steel Design</b>	<b>U</b>	<b>3</b>
Design of steel tensile members, compression members, beams, beam-columns, and bolted and welded connections based on AISC Specifications. Design problem solving. Introduction to computer-aided design. Prereq: 3310 (431), and enrollment in CivilEn major. Not open to students with credit for 532.			
<b>4340</b>	<b>Behavior of Structural Element</b>	<b>U</b>	<b>3</b>
Mechanics of beams - symmetrical bending and unsymmetrical bending; shear stresses and shear center for thin flange beams; buckling of columns; pressure vessels and combined loadings. Prereq: 3310 (431). Not open to students with credit for 534.			
<b>4350</b>	<b>Reinforced Concrete Design</b>	<b>U</b>	<b>3</b>
Analysis and design of reinforced concrete beams, one-way slabs and columns under flexure, shear and axial loads. Prereq: 3310 (431), and enrollment in CivilEn major. Not open to students with credit for 535.			
<b>4552</b>	<b>Design and Construction of Flexible Pavements</b>	<b>U</b>	<b>3</b>
The design, manufacturing, placement, compaction and maintenance of hot mix asphalt for roadways with coverage on how to determine and specify which mixture to use for a given application. Sustainable roadway design is also covered. Prereq: 3510 (451); and Math 2250 (255), 2415 (415) or 2177. Not open to students with credit for 552.			
<b>4800</b>	<b>Project Management in Civil Engineering</b>	<b>U</b>	<b>3</b>
Comprehensive guide to project management methods, tools, and techniques. Prereq: Jr standing, and enrollment in CivilEn major.			
<b>4998</b>	<b>Undergraduate Research in Civil Engineering</b>	<b>U</b>	<b>1 - 5</b>
Opportunity for undergraduate students to conduct research in Civil and Environmental Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research in Civil Engineering</b>	<b>U</b>	<b>1 - 5</b>
Opportunity for undergraduate honors students to conduct research in Civil and Environmental Engineering. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4999</b>	<b>Civil Engineering Research for Thesis</b>	<b>U</b>	<b>1 - 5</b>
Supervised research and project work. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4999H</b>	<b>Civil Engineering Research for Thesis</b>	<b>U</b>	<b>1 - 5</b>
Supervised research and project work arranged individually for honors students. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>5001</b>	<b>Introduction to Geographic Information Systems</b>	<b>U G</b>	<b>4</b>
Introduction to the basic principles of geographic information systems and their use in spatial analysis and information management. Prereq: 2050, Stat 3450, 3460, or 3470, and Sr standing; or Grad standing in CivilEn or EnvEng; or permission of instructor.			

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<b>5130</b>	<b>Applied Hydrology</b>	<b>U G</b>	<b>3</b>
Hydrologic cycle, meteorology, streamflow, evapotranspiration, hydrographs, runoff relations, runoff hydrographs, groundwater, unit hydrographs, flood routing, frequency and duration studies, and application of hydrologic techniques. Prereq: 3160 (516) or EnvEng 516. Not open to students with credit for 613 or EnvEng 613.			
<b>5162</b>	<b>Introduction to Laminated Composite Materials</b>	<b>U G</b>	<b>3</b>
Introduction to anisotropic material behavior and failure assessment of laminated composite materials. Classical lamination theory, beams, plates and shells. Prereq: MechEng 2020 (420) or 2040; or Grad standing in Engineering; or permission of instructor. Not open to students with credit for 662, 762, MechEng 5162, 662, or 762. Cross-listed in MechEng.			
<b>5168</b>	<b>Introduction to the Finite Element Method</b>	<b>U G</b>	<b>3</b>
Basic concepts, formulation, and application of finite element techniques for numerical solution of problems of engineering and scientific interest. Prereq: 2060, Math 2568, 2174, or 2177, or equiv., or Grad standing in Engr or Math. Not open to students with credit for MechEng 5168 or Math 5168. Cross-listed in Math.			
<b>5194</b>	<b>Group Studies in Civil Engineering</b>	<b>U G</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5220</b>	<b>Open Channel Hydraulics</b>	<b>U G</b>	<b>3</b>
Flow classifications, channel properties, energy and momentum principles, critical flow, uniform flow formulas, erodible and nonerodible channel design, and gradually-varied profile computations. Prereq: 3160 (516) or EnvEng 516; and Math 2177, or 2415 and 2568. Not open to student with credit for 722.			
<b>5230</b>	<b>Transport Phenomena in Water Resources Engineering</b>	<b>U G</b>	<b>3</b>
Study of the mechanisms by which momentum, heat, and mass are transported in fluid systems of interest to water resources engineers. Prereq: 3160 (516) or EnvEng 516, and Math 2173, 2177, 2255 (255), or 2415 (415). Not open to students with credit for 723.			
<b>5240</b>	<b>Groundwater Engineering</b>	<b>U G</b>	<b>3</b>
The role of groundwater in the hydrologic cycle, water supply, construction, and contamination. Includes principles describing subsurface water movement (seepage, saturated, and unsaturated flow). Emphasis on gaining a working knowledge of techniques used in applied engineering practice to estimate groundwater parameters for design purposes. Applications include well design, pumping, and drains. Prereq: 3130, or Grad standing; or permission of instructor. Not open to students with credit for 750.			
<b>5300</b>	<b>Airport Planning, Design, and Development</b>	<b>U G</b>	<b>3</b>
A comprehensive study of airport planning, design & development, the role of the airport and its components as part of the overall Air Transportation System, and the issues related to the planning, design, and development of the airport and its systems. Prereq: Aviatn 3000 or CRPlan 3100, or Sr standing in CivilEn major, or Grad standing, or permission of instructor. Cross-listed in Aviatn and CRPlan.			
<b>5310</b>	<b>Matrix Structural Analysis</b>	<b>U G</b>	<b>3</b>
Analysis of frame structures by force and displacement methods using matrices. Prereq: 4310 (531). Not open to students with credit for 735.			
<b>5320</b>	<b>Intermediate Structural Steel Design</b>	<b>U G</b>	<b>3</b>
Design of bolted and welded building connections; structural behavior in the nonlinear range; plastic analysis and design of steel structures. Prereq: 4320.			
<b>5350</b>	<b>Intermediate Reinforced Concrete Design</b>	<b>U G</b>	<b>3</b>
Analysis and design of reinforced concrete systems and components. Prereq: 4350 (535). Not open to students with credit for 731.			
<b>5360</b>	<b>Bridge Engineering</b>	<b>U G</b>	<b>3</b>
Types of bridges; aesthetics in bridge design; loads on bridges; selection of bridge type; AASHTO specifications for bridge design; design of steel bridges. Prereq: 4310 (531) and 4320 (532). Not open to students with credit for 736.			
<b>5370</b>	<b>Prestressed Concrete Design</b>	<b>U G</b>	<b>3</b>
Design applications for prestressed concrete members and structures. Basic concepts to be covered include flexural and shear design, stress analysis, deflections, and prestress losses. Prereq: 4350 (535). Not open to students with credit for 737.			
<b>5410</b>	<b>Engineering Surveying</b>	<b>U G</b>	<b>3</b>
Surveying applications for engineering, construction, mining and transportation work. Route surveying and geometric design; topographic site surveys and mapping; earthwork computations. Prereq: 2410, GeodSciE 410, or 450, and enrollment in CivilEn major, or permission of instructor. Not open to students with credit for GeodSciE 502.			
<b>5411</b>	<b>Legal Aspects of Surveying</b>	<b>U G</b>	<b>4</b>
History of measurement; development of land survey systems; milestones in technology; Land Surveyor's role; types of land surveys; retracement principles; laws on surveying practices. Prereq: 2410 (400), and enrollment in CivilEn major; or permission of instructor. Not open to students with credit for GeodSciE 560 and 561.			

<b>5412</b>	<b>Land Boundary &amp; Development Principles</b>	<b>U G</b>	<b>4</b>
Analysis of evidence and procedures for boundary location; preparing land boundary descriptions; process of subdividing and platting land. Prereq: 5411, or 560 and 561, and enrollment in CivilEn major; or permission of instructor. Not open to students with credit for GeodSciE 561 and 562.			
<b>5420</b>	<b>Remote Sensing of Environment</b>	<b>U G</b>	<b>3</b>
The energies of the natural and cultural environment, current remote sensing systems and case histories of applications in measuring the environment. Prereq: 2410 (400), or permission of instructor. Not open to students with credit for 603 or 606.			
<b>5422</b>	<b>Terrain Analysis</b>	<b>U G</b>	<b>3</b>
Principles and applications of photo pattern analysis, geologic and geomorphologic patterns, terrain studies, and land use suitability and capability mapping. Prereq: 2050 or Stat 3450, 3460, or 3470; or permission of instructor.			
<b>5441</b>	<b>Introduction to GPS: Theory and Applications</b>	<b>U G</b>	<b>3</b>
Introduction to reference systems; fundamentals of GPS design and operation; GPS observables, error analysis and handling; data collection and data processing; interdisciplinary applications of GPS. Prereq: Math 1172 or 1544 (154) or 2153 (254), and Jr standing or above; or Grad standing; or permission of instructor. Not open to students with credit for GeodSciE 608.			
<b>5461</b>	<b>Geospatial Numerical Analysis</b>	<b>U G</b>	<b>4</b>
Application of adjustment techniques to geo-spatial information including but not limited to GPS, Photogrammetry GIS and remote sensing. Prereq: 2410 (400), or Grad standing. Not open to students with credit for GeodSci 650 or 651.			
<b>5510</b>	<b>Durability and Condition Assessment of Reinforced Concrete Structures</b>	<b>U G</b>	<b>3</b>
In-depth review of the most common processes affecting durability of portland cement concrete durability, and presents methods of assessing the quality of in-place concrete construction for vertical construction, roads and bridges, and geotechnical elements. Laboratory durability testing, on-site non-destructive evaluation techniques, and procedures for repair and rehabilitation will be discussed. Prereq: 3510, or Grad standing in Civil Engineering.			
<b>5561</b>	<b>Rock Mechanics, Slope Stability and Retaining Structures</b>	<b>U G</b>	<b>3</b>
Stress-strain properties of soil and rock. Strength of cohesive and non-cohesive materials under a variety of loads. Settlement and stability analyses of soil and rock slopes in for both in-situ and reconstituted materials. Prereq: 3540, or Grad standing.			
<b>5571</b>	<b>Principles of Foundation Analysis and Design</b>	<b>U G</b>	<b>3</b>
Design methods (classical and numerical) will be presented for the analysis of excavations, earth structures, shallow and deep foundations. The course introduces: site investigation techniques, failure mechanisms and design techniques of footings, drilled shafts, sheet piles, driven piles, anchors, tiebacks, and MSE walls, as well as, stability and settlement calculations. Prereq: or concur: 3540 and 3541; Grad standing; or permission of instructor.			
<b>5581</b>	<b>Numerical Methods in Geotechnical Engineering</b>	<b>U G</b>	<b>3</b>
Introduction to Geomechanical Numerical modeling of soils and development of Soil-Structure Interaction (SSI) solutions using the Finite Difference and Element Methods, and to the constitutive modeling of soils based on elasticity and plasticity deformation theories. Multiple numerical techniques that are widely used in Geotechnical engineering and Soil-Structure Interaction problems. Prereq: 3540; and 5561 or 5571; or permission of instructor.			
<b>5610.01</b>	<b>Sustainable Infrastructure for Developing Rural Communities</b>	<b>U G</b>	<b>3</b>
Working effectively with developing rural communities to identify and acquire their basic infrastructure needs demands a combination of community development and engineering expertise. This series of courses will, at an introductory level, bridge the gap between these two disciplines. It will provide the engineer with the knowledge of how to design sustainable infrastructure systems. Prereq: Permission of instructor.			
<b>5700</b>	<b>Urban Transportation Demand Forecasting</b>	<b>U G</b>	<b>3</b>
Introduction and applications of quantitative demand forecasting in urban transportation. Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Not open to students with credit for 775 or CRPlan 5700 (775). Cross-listed in CRPlan.			
<b>5720</b>	<b>Transportation Engineering Data Collection Studies</b>	<b>U G</b>	<b>3</b>
Methods of collecting and analyzing transportation data with empirical applications. Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Not open to students with credit for 672.			
<b>5730</b>	<b>Highway Location and Design</b>	<b>U G</b>	<b>3</b>
Methods of route location; design standards for highways, intersections, freeways, and interchanges; discussion of computer methods for highway design. Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Not open to students with credit for 673.			



<b>5740</b>	<b>Design and Operation of Road Traffic Facilities</b>	<b>U G</b>	<b>3</b>
Traffic laws and ordinances; operational design of streets, intersections, parking, and terminal facilities, design and operation of traffic control devices. Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Not open to students with credit for 774.			
<b>5750</b>	<b>Instrumentation, Signals, and Control in Transportation Applications</b>	<b>U G</b>	<b>3</b>
An interdisciplinary course bringing together electrical engineering tools and transportation applications. Students gain valuable experience working in teams while learning traffic flow, surveillance and control. Prereq: 3700 (570), or Grad standing in Engineering or Science, or permission of instructor. Not open to students with credit for 675 or ECE 5400 (675). Cross-listed in ECE 5400.			
<b>5760</b>	<b>Network Metrics and Control in Transportation Systems</b>	<b>U G</b>	<b>3</b>
Course covers fundamental analysis tools including: time space diagram, queuing theory, traffic flow theory, and further network theory. Includes application to intersection control (signal timing). Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Not open to students with credit for 776.			
<b>5770</b>	<b>Urban Public Transportation</b>	<b>U G</b>	<b>3</b>
This course focuses on the analysis, planning, and design of bus and rail urban public transportation services and operations. Fundamental knowledge and methods for network and route planning, service planning, design, performance monitoring, and operations control. Analytical tools including probability, statics, and optimization are extensively used in this course. Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Not open to students with credit for 670. Cross-listed in CRPlan.			
<b>5780</b>	<b>Seminar in Transportation Engineering and Planning</b>	<b>U G</b>	<b>1</b>
Speakers from and site visits to transportation agencies, organizations, and companies. Prereq: 3700 (570), or Grad standing in CivilEn, or permission of instructor. Repeatable to a maximum of 3 cr hrs.			
<b>5810</b>	<b>Construction Safety and Forensics</b>	<b>U G</b>	<b>3</b>
Practical aspects of identifying construction and structural problems, construction accidents, mechanisms of failures and accidents, methods of avoidance and forensic engineering. Prereq: 2810 (682), or permission of instructor. Not open to students with credit for both 683 and 688.			
<b>5820</b>	<b>Construction Estimating</b>	<b>U G</b>	<b>3</b>
Practical aspect in estimating real construction projects encompassing highway, foundation, buildings, and bridges. Prereq: 2810 (682), or permission of instructor. Not open to students with credit for 685.			
<b>5830</b>	<b>Construction Scheduling</b>	<b>U G</b>	<b>3</b>
Practical aspects in identifying construction activities and their relations, establishing visual representation of a project schedule, and computing the completion date of the project. Prereq: 2810 (682), or permission of instructor. Not open to students with credit for 684.			
<b>5840</b>	<b>Construction Contracts and Claims</b>	<b>U G</b>	<b>3</b>
Practical aspects of the development and interpretation of contracts and claims focusing on the construction industry. Prereq: 2810 (682), or permission of instructor. Not open to students with credit for 686.			
<b>6193</b>	<b>Individual Studies in Civil Engineering</b>	<b>G</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Topics selected to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies in Civil Engineering</b>	<b>G</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>6210</b>	<b>The Physics of Sustainable Buildings</b>	<b>G</b>	<b>3</b>
Equips students to understand and properly model the drivers of energy consumption and human exposure to airborne pollutants in buildings. Overview of the physical laws governing transport processes in buildings. Methods of modeling these processes that are specific to buildings, including energy balances, mass balances and their constituents. Prereq: Grad standing in CivilEn, or permission of instructor.			
<b>6211</b>	<b>Simulation of Building Energy Performance</b>	<b>G</b>	<b>3</b>
Simulation of building energy consumption under various design or retrofit scenarios. Prediction of the impact of design decisions and energy conservation measures on building energy consumption. Employment of EnergyPlus and OpenStudio, free but sophisticated and open source building energy modeling tools, to develop and simulate a model of a real building. Prereq: Grad standing in the College of Engineering, or permission of instructor.			
<b>6230</b>	<b>Numerical Models in Water Resources Engineering</b>	<b>G</b>	<b>3</b>
Lake, river, and coastal contaminant or heat numerical transport model formulation; averaging; finite difference and finite volume methods; errors, stability; data requirements, verification procedures. Prereq: 5230. Not open to students with credit for 823.			

<b>6300</b>	<b>Dynamics of Structures</b>	<b>G</b>	<b>3</b>
Concepts in structural dynamics and their applications in civil engineering type structures. Methods to determine dynamic response of single degree of freedom systems with free and forced vibrations, similar concepts in discrete and continuous multi-degree of freedom systems. Numerical methods to determine response over time, industry standard analysis software. Prereq: Grad standing, or permission of instructor.			
<b>6435</b>	<b>Global Navigation Satellite Systems (GNSS) Data Processing</b>	<b>G</b>	<b>3</b>
Theories and practices in GNSS data processing for high-precision (centimeter-level) static and kinematic applications. In-depth aspects of GNSS code and phase data, observation models, estimation strategy, and some physical phenomenon that affects the data. Data processing routines to estimate various parameters, hand-on experience in analyzing real GNSS data.			
<b>6451</b>	<b>Introduction to Photogrammetry</b>	<b>G</b>	<b>4</b>
Analytical and digital photogrammetry, bundle block adjustment, analytical camera calibration, aerotriangulation, image acquisition systems, GPS controlled aerotriangulation, quality control and network design, DEMs and orthophotography. Prereq: Not open to students with credit for 725 and 728.			
<b>6510</b>	<b>Advanced Concrete Materials</b>	<b>G</b>	<b>3</b>
This course takes a materials science-based approach to understanding the materials and processes involved in hydration and property development of cementitious materials. Students will then apply that learning to understand how to design systems which will prevent, and/or mitigate durability concerns common in concrete infrastructure. Prereq: Grad standing in CivilEn, or permission of instructor.			
<b>6880</b>	<b>Civil Engineering Graduate Seminar</b>	<b>G</b>	<b>1</b>
This seminar will strengthen presentation skills, engender professional development, and broaden understanding of current engineering research essential for graduate students and professional engineers. Components of this seminar will include: presentations of research work conducted within the department, workshops on professional skills, and talks by invited speakers. Prereq: Grad standing in CivilEn, or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>6999</b>	<b>Civil Engineering Research for Thesis</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>7320</b>	<b>Structural Reliability</b>	<b>G</b>	<b>3</b>
Fundamental concepts, theoretical developments, and simulation strategies for the assessment of the reliability of structures with applications in design and performance evaluation of new and existing structures and other engineered systems. Prereq: 2050, and 4320 or 4350; or Grad standing in CivilEn; or permission of instructor.			
<b>7330</b>	<b>Earthquake Engineering</b>	<b>G</b>	<b>3</b>
Analysis and design of structures subject to seismic loading; case studies of behavior of structures during earthquakes; design of structures to minimize earthquake damage; earthquake-resistant systems for highrise buildings; vibration control. Prereq: A course in structural dynamics or vibrations, or permission of instructor. Not open to students with credit for 830.			
<b>7350</b>	<b>Advanced Reinforced Concrete</b>	<b>G</b>	<b>3</b>
Advanced topics in reinforced concrete structural modeling, analysis, design and detailing. Prereq: 5350. Not open to students with credit for 831.			
<b>7421</b>	<b>Advanced Machine Learning for Remote Sensing Image Interpretation</b>	<b>G</b>	<b>3</b>
Introduces basic high-resolution remote sensing concepts with focus on optical remote sensing, and computational solutions for typical remote sensing problems. Students are assumed to know basic knowledge in statistical estimation, linear algebra and numerical methods for engineering. Students with prior experiences on remote sensing/machine learning/computer vision will find this easier to follow. Prereq: Grad standing, or permission of instructor. Not open for students with credit for ECE 7402. Cross-listed in ECE 7402.			
<b>7453</b>	<b>Photogrammetric Computer Vision</b>	<b>G</b>	<b>3</b>
Fundamental processes of digital photogrammetry. Advanced DEM and orthophoto methods. Extraction of high level features such as lines curves and segments; Matching high level features. Prereq: 6451.			
<b>7730</b>	<b>Transportation Demand Modeling</b>	<b>G</b>	<b>4</b>
Various applications of demand modeling in transportation, with emphasis on discrete choice demand modeling. Prereq: 5700, CRPlan 5700, or permission of instructor. Not open to students with credit for 873.			
<b>7740</b>	<b>Urban Transportation Network Analysis</b>	<b>G</b>	<b>4</b>
Various networks concepts and applications in transportation, with emphasis on equilibrium-based traffic assignment. Prereq: 5700, CRPlan 5700, or permission of instructor. Not open to students with credit for 874.			

## 96 Civil Engineering

<b>7760</b>	<b>Transportation Management Systems</b>	<b>G</b>	<b>3</b>
Concepts and methods for the management of unscheduled and scheduled urban transportation systems. Emphasizes network performance and travel demand interactions, and real-time applications. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 878.			
<b>7770</b>	<b>Infrastructure Systems Analysis</b>	<b>G</b>	<b>3</b>
Presents a systems approach to infrastructure provision and management with a focus on the uncertainty inherent to large-scale and long-lived facilities. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 777.			
<b>7780</b>	<b>Graduate Student Seminar in Transportation Engineering and Planning</b>	<b>G</b>	<b>1</b>
Students will present their research to one another to gain experience presenting, learn what other students are doing, and provide feedback to one another. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 or hrs. This course is graded S/U.			
<b>7790</b>	<b>Transportation Practicum</b>	<b>G</b>	<b>4</b>
Practical experience and perspective on practice of transportation engineering and planning. Prereq: Grad standing in CivilEn and CRPlan Dual M.S. Degree Program, and permission of instructor. Not open to students with credit for 990. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies in Civil Engineering</b>	<b>G</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Topics selected to give the advanced student opportunity to pursue special studies not otherwise offered Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Civil Engineering</b>	<b>G</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>8443</b>	<b>Advanced Topics in GPS</b>	<b>G</b>	<b>3</b>
Advanced topics in GPS focused on science, engineering and navigation applications of GPS: Positioning algorithms; Remote sensing with GPS; GPS atmospheric studies; GPS integration with other navigation and imaging sensors (digital cameras, LIDAR). Prereq: 7442, 6461, or GeodSci 650, 651, or equivalent; or permission of instructor. Not open to students with credit for GeodSci 888.			
<b>8454</b>	<b>Videogrammetry</b>	<b>G</b>	<b>3</b>
Optical flow; neuronal processing; measuring motion field; geometry of motion field; camera motion; rigid and nonrigid body motion; measurements from motion; block adjustment using motion. Prereq: 6451 and 7442.			
<b>8810</b>	<b>Construction Intelligent System and Simulation I</b>	<b>G</b>	<b>3</b>
Applications of intelligent system to construction systems and operations. Simulations include mathematics and computer modeling. Knowledge about computer programming recommended. Prereq: 2810 and 5810, or permission of instructor. Not open to students with credit for 881.			
<b>8820</b>	<b>Construction Intelligent System and Simulation II</b>	<b>G</b>	<b>3</b>
Applications of intelligent system to construction systems and operations. Simulations include mathematics and computer modeling. Knowledge about computer programming recommended. Prereq: 8810, or permission of instructor. Not open to students with credit for 888.			
<b>8998</b>	<b>Graduate Research in Civil Engineering</b>	<b>G</b>	<b>1 - 15</b>
Graduate level research in Civil Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			
<b>8999</b>	<b>Civil Engineering Research for Dissertation</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			

### Classics

<b>1101</b>	<b>Introduction to Classical Literature</b>	<b>U</b>	<b>3</b>
Introductory survey of the Greek and Roman achievement in literature and its contribution to Western thought; selected readings in English translation in major authors from Homer to Boethius. GE lit and diversity global studies course.			
<b>1101H</b>	<b>Introduction to Classical Literature</b>	<b>U</b>	<b>3</b>
Introductory survey of the Greek and Roman achievement in literature and its contribution to Western thought; selected readings in English translation in major authors from Homer to Boethius. Prereq: Honors standing, or permission of instructor. GE lit and diversity global studies course.			

<b>2010</b>	<b>Classical Background of Scientific Terminology</b>	<b>U</b>	<b>3</b>
An introduction to the Greek and Latin roots of modern scientific terminology, especially medical and pharmaceutical terminology. This is an online-based course. In-person sessions include first-day orientation, midterm, and the final exam. Prereq: Not open to students with credit for Classics 210.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 9</b>
Topics in classical studies. Au, Sp, Su Sems. Prereq: Permission of instructor. Repeatable to a maximum of 36 or hrs or 12 completions. This course is graded S/U.			
<b>2194H</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 9</b>
Topics in classical studies. Au, Sp, Su Sems. Prereq: Honors standing, or permission of department or instructor. Repeatable to a maximum of 36 or hrs or 12 completions. This course is graded S/U.			
<b>2201</b>	<b>Classical Civilization: Greece</b>	<b>U</b>	<b>3</b>
A survey of ancient Greek civilization, concentrating upon important facets of literature, history, art, and archaeology. Prereq: Not open to students with credit for Classics 224. GE cultures and ideas and diversity global studies course.			
<b>2201H</b>	<b>Classical Civilization: Greece</b>	<b>U</b>	<b>3</b>
A survey of ancient Greek civilization, concentrating upon important facets of literature, history, art, and archaeology. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for Classics 224H. GE cultures and ideas and diversity global studies course.			
<b>2202</b>	<b>Classical Civilization: Rome</b>	<b>U</b>	<b>3</b>
A survey of the civilization of ancient Rome, concentrating upon important facets of literature, history, art, and archaeology. Prereq: Not open to students with credit for Classics 225. GE cultures and ideas and diversity global studies course.			
<b>2202H</b>	<b>Classical Civilization: Rome</b>	<b>U</b>	<b>3</b>
A survey of the civilization of ancient Rome, concentrating upon important facets of literature, history, art, and archaeology. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for Clas 2202 (Classics 225) or 225H. GE cultures and ideas and diversity global studies course.			
<b>2204</b>	<b>Medicine in the Ancient World</b>	<b>U</b>	<b>3</b>
An introduction to the theory and practice of medicine in ancient Greece and Rome. Prereq: Not open to students with credit for Classics 230. GE cultures and ideas and diversity global studies course.			
<b>2205</b>	<b>Sports and Spectacles in the Ancient World</b>	<b>U</b>	<b>3</b>
The history and social role of gymnastic and athletic competition in Greece and Rome. The evolution of their modern revivals. Prereq: Not open to students with credit for Classics 250. GE cultures and ideas course.			
<b>2220</b>	<b>Classical Mythology</b>	<b>U</b>	<b>3</b>
Personalities and attributes of the Greek and Roman gods and goddesses, their mythology and its influence on Western culture. GE lit and diversity global studies course.			
<b>2220H</b>	<b>Classical Mythology</b>	<b>U</b>	<b>3</b>
Personalities and attributes of the Greek and Roman gods and goddesses, their mythology and its influence on Western culture. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for 2220. GE lit and diversity global studies course.			
<b>2222</b>	<b>From Ishtar to Christ: The History of Mediterranean Religions</b>	<b>U</b>	<b>3</b>
This course introduces students to the historical facts of 10 ancient Mediterranean religions in a context that trains them to study religions more generally. It also teaches them how two of the most prominent religions today--Judaism and Christianity--succeeded within a richly diverse religious marketplace, and how religions respond to their political, economic, and social environments. Prereq: Not open to students with credit for RelStds 2222. GE historical study course. Cross-listed in RelStds.			
<b>2301</b>	<b>Classical Archaeology</b>	<b>U</b>	<b>3</b>
Introduction to the principles, methods, and history of archaeological investigation in the ancient Greek and Roman world, illustrated through a selection of major classical sites. Prereq: Not open to students with credit for Classics 240, History 2210 (240 or 306), or HistArt 2301 (306). GE cultures and ideas and historical study and diversity global studies course. Cross-listed in History 2210 and HistArt 2301.			
<b>2500H</b>	<b>Greek Identities: Ancient and Modern</b>	<b>U</b>	<b>3</b>
Explores how Greeks defined themselves by comparing ethnic and national identity in ancient and modern Greece. What does it mean to be Greek? Prereq: Not open to students with credit for MdmGrk 2500H (250H). GE lit course.			
<b>2798.01</b>	<b>Study Tour</b>	<b>U</b>	<b>3 - 9</b>
Specific content, location, semester(s) of offering, and prerequisites vary. Contact department for details. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 3 completions.			

<b>2798.02</b>	<b>Byzantium - Constantinople - Istanbul: Crossroads of East and West</b>	<b>U</b>	<b>3</b>
Traces the evolution of culture, religion, and power in the eastern Mediterranean, focusing on the reception of classical culture by the Byzantine and Ottoman empires and the modern nations of Turkey and Greece. The class will examine how places endowed with cultural and religious meaning have been appropriated or rejected by their successive owners throughout history. GE cultures and ideas course and diversity global studies course.			
<b>3000</b>	<b>From Rome to Europe and Beyond</b>	<b>U</b>	<b>3</b>
Survey of the influence Latin as a literary language had on Western cultures from the Middle Ages to the present day. GE cultures and ideas and historical study course.			
<b>3100</b>	<b>Topics in Ancient Literature and Culture</b>	<b>U</b>	<b>3</b>
In depth analysis of selected topics in ancient literature and culture. Varies. Repeatable to a maximum of 6 or hrs.			
<b>3101</b>	<b>Greek and Roman Epic</b>	<b>U</b>	<b>3</b>
Study of Greek and Roman epic based on extensive readings in English translation of works by authors such as Homer, Apollonius, Vergil and Ovid. Prereq: Not open to students with credit for Classics 301.			
<b>3102</b>	<b>Greek and Roman Drama</b>	<b>U</b>	<b>3</b>
Study of Greek and Roman drama based on extensive readings in English translation of the plays of such authors as Sophocles, Euripides, Menander, Plautus, or Seneca. Prereq: Not open to students with credit for Classics 302.			
<b>3103</b>	<b>Comic Spirit in Antiquity</b>	<b>U</b>	<b>3</b>
Study of the comic literature of the Greco-Roman world based on extensive readings in English translation drawn from epic, drama, satire, and the novel. Prereq: Not open to students with credit for Classics 303.			
<b>3203</b>	<b>War in Ancient Greek and Roman Literature</b>	<b>U</b>	<b>3</b>
Study of ancient warfare as a complex political, social, cultural, and economic process through the lens of Greek and Latin literary texts. GE lit course.			
<b>3215</b>	<b>Sex and Gender in the Ancient World</b>	<b>U</b>	<b>3</b>
Introductory survey of women, gender, and sexual relations in the ancient Mediterranean world, especially Greece and Rome. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 3215. GE historical study and diversity global studies course. Cross-listed in History.			
<b>3401</b>	<b>Ancient Greek Religion</b>	<b>U</b>	<b>3</b>
Study of ancient Greek religions, including the beginnings of Christianity. Prereq: Not open to students with credit for Classics 323. GE historical study course.			
<b>3403</b>	<b>The Hero in Classical Mythology</b>	<b>U</b>	<b>3</b>
The development and interpretation of the major cycles of classical saga based on extensive readings in Greek and Roman epic and drama. Prereq: Not open to students with credit for Classics 322.			
<b>3404</b>	<b>Magic in the Ancient World</b>	<b>U</b>	<b>3</b>
An introduction to the theory and practice of magic in the ancient Mediterranean, how people viewed it, and how it survived in later epochs. GE cultures and ideas and diversity global studies course.			
<b>3405</b>	<b>Christians in the Greco-Roman World</b>	<b>U</b>	<b>3</b>
The origins and development of Christianity in its historical, social, and cultural context. Prereq: Not open to students with credit for Classics 325.			
<b>3408</b>	<b>Ancient Roman Religion</b>	<b>U</b>	<b>3</b>
Study of religious life and institutions in the Roman Republic and Empire, with due attention to the primary sources, in translation, and their difficulties. GE cultures and ideas and historical study course.			
<b>3956</b>	<b>Black Cultures and Classical Education</b>	<b>U</b>	<b>3</b>
Study the role of classics in African and the African Diaspora (US, Caribbean, Brazil). Major themes include: adaptations of classical literature, impact of classical education, classics as a tool of colonial oppression, classics as a tool of anti-colonial resistance, theories of race, classical and classicizing depictions of black bodies. Prereq: Not open to students with credit for AfAmAST 3956. Cross-listed in AfAmAST. GE lit course. GE diversity global studies course.			
<b>4031</b>	<b>Sacred Texts of the Ancient World</b>	<b>U</b>	<b>3</b>
Study of sacred texts from Greece and Rome.			
<b>4101</b>	<b>Classical Receptions: Ancient Greece and Rome in the Modern World</b>	<b>U</b>	<b>3</b>
Explorations of the reception of ancient culture in the modern world, from creative cultural engagements to comparative political and social topics.			
<b>4201</b>	<b>Political Thought and Institutions in the Greco-Roman World</b>	<b>U</b>	<b>3</b>
Selected topics concerning the development of ancient political theory. Prereq: Not open to students with credit for Classics 505.			

<b>4501</b>	<b>The Good Life: Ancient Ethical Philosophy</b>	<b>U</b>	<b>3</b>
Explorations of ancient ethical philosophy, from Socrates to the Hellenistic schools of Epicureanism and Stoicism, including their legacy in later periods.			
<b>4998</b>	<b>Research</b>	<b>U</b>	<b>1 - 3</b>
A program of study arranged for each student. Prereq: Sr standing, and permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 3</b>
A program of study arranged for each student. Prereq: Honors standing, and Sr standing, and permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 6</b>
A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in classics. Prereq: Jr standing or above, and enrollment in Classics major; or permission of instructor or department. Repeatable to a maximum of 18 or hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 6</b>
A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in classics. Prereq: Honors standing, Jr standing or above, and Enrollment in Classics Major; or permission of instructor or department. Repeatable to a maximum of 18 or hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 9</b>
Topics in classical studies at the upper undergraduate and introductory/intermediate graduate levels. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 27 or hrs or 9 completions. This course is graded S/U.			
<b>5302</b>	<b>Studies in Greek or Roman Topography</b>	<b>U G</b>	<b>3</b>
The topography and archaeology of ancient Athens, Rome, or other sites important to Greco-Roman literature and civilization. Prereq: Not open to students with credit for Classics 656.			
<b>5401</b>	<b>Methodologies for the Study of Ancient Religions</b>	<b>U G</b>	<b>3</b>
Introduction to the methodologies and the scholars who have significantly influenced the study of ancient religion. Prereq: Not open to students with credit for NELC 5401. Cross-listed in NELC.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
Study at a foreign institution for which the student receives credit from OSU. Prereq: Permission of department chairperson. Repeatable to a maximum of 27 or hrs or 3 completions. This course is progress graded.			
<b>5798.02</b>	<b>Study Tour: Foreign</b>	<b>U G</b>	<b>3 - 9</b>
Specific content, location, semester(s) of offering, and prerequisites vary. Contact department for details. Prereq: Clas 3201.01, 3201.02, or 5302, or permission of department chairperson. Repeatable to a maximum of 27 or hrs or 3 completions.			
<b>6780</b>	<b>History of Philology</b>	<b>G</b>	<b>3</b>
A seminar introducing first-year graduate students to methods, instrument and history of research in ancient studies.			
<b>7890</b>	<b>Seminar on Classical Literatures and Cultures</b>	<b>G</b>	<b>3</b>
Graduate research seminar on topics that span across Greek and Latin (and occasionally other ancient Mediterranean) texts and cultures. Prereq: Grad standing. Repeatable to a maximum of 9 or hrs.			
<b>7891</b>	<b>Graduate Seminar on Epigraphy</b>	<b>G</b>	<b>3</b>
Graduate research seminar on Greek and/or Latin epigraphy. Prereq: Not open to students with credit for Classics 811.			
<b>7892</b>	<b>Graduate Seminar on Greek and Latin Palaeography and Textual Criticism</b>	<b>G</b>	<b>3</b>
Research seminar on Greek and Latin palaeography and textual criticism. Prereq: Not open to students with credit for Classics 812.			
<b>7893</b>	<b>Graduate Seminar on Religion and Mythology of the Ancient World</b>	<b>G</b>	<b>3</b>
Graduate research seminar on Greek and/or Roman religion and mythology. Reading knowledge of Greek and/or Latin preferred; special arrangements can be made for exceptional students without reading knowledge. Prereq: Not open to students with credit for Classics 870. Repeatable to a maximum of 9 or hrs.			
<b>7894</b>	<b>Graduate Seminar on Late Antiquity and Byzantium</b>	<b>G</b>	<b>3</b>
Research Seminar on select topics in the history, cultures, and literatures of Late Antiquity and Byzantium. Prereq: Not open to students with credit for Classics 890.			

## 98 Classics

**7895 Graduate Seminar on New Testament and Early Christian Literature** G 3

Graduate research seminar on the exegetical problems and current methodologies in the academic study of the New Testament and other early Christian literature. Reading knowledge of Greek preferred; special arrangements can be made for exceptional students without reading knowledge.  
Prereq: Grad standing. Repeatable to a maximum of 9 cr hrs.

**8301 Studies in Ancient Greek and Roman Art** G 4

Advanced study and specialized research on major topical problems in ancient art.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Cross-listed in HistArt.

### Communication

**1100 Communication in Society** U 3

Role of communication in society; forms, strategies, theories and issues; interpersonal, group, organizations, public and mass communication.  
Prereq: Not open to students with credit for 200. GE soc sci indivs and groups course.

**1101 History of Communication** U 3

History of human communication from the beginning of spoken and written communication to modern mediated and mass communication.  
Prereq: Not open to students with credit for 101. GE soc sci indivs and groups course.

**1102H History & Theories of Communication** U 3

This is a combination of Comm 1101 History of Communication and Comm 1100 Communication in Society that is open only to honors students. The first half of the course covers the history of human communication from the beginning of spoken and written communication to modern mediated and mass communication. The second half covers the various theoretical approaches to the study of communication.  
Prereq: Honors standing. Not open to students with credit for 1101 (101) or 1100 (200). GE soc sci indivs and groups course.

**2110 Principles of Effective Public Speaking** U 3

A course in critical thinking and public speaking; how to analyze and organize information for oral presentations; basics of public speaking for majors and non-majors.

**2131 Business and Professional Speaking** U 3

Train students in public speaking and developing interpersonal skills for business and the professions.

**2221 Media Writing and Editing** U 4

Designed to help students develop the fundamentals of news reporting, writing, and editing across news platforms.  
Prereq: C- or higher in 1100 and 1101, English 1110.xx or equivalent, and enrollment in Comm or Journal; or enrollment in AgrComm major; or permission of instructor. Not open to students with credit for 421 or 422.

**2223 Lantern Practicum** U 4

The practice of journalism as a member of the staff of the Lantern student newspaper and Web news site.  
Prereq: 2221 (421 and 422), or permission of instructor. Repeatable to a maximum of 8 cr hrs.

**2321 Writing for Strategic Communication** U 3

Introduction to, and instruction and practice in writing, reporting, and editing for the strategic communication industries.  
Prereq: Enrollment in AgrComm, Comm, or Journal major; or permission of instructor.

**2331 Strategic Communication Principles** U 3

The role of strategic communication in business, including basic principles of integrated marketing, theory, and ethical standards.  
Prereq: Not open to students with credit for 431. GE soc sci indivs and groups course.

**2367 Persuasive Communication** U 3

Principles of persuasion as reasoned discourse.  
Prereq: Soph standing or above, and English 1110.01 or equiv. Not open to students with credit for 2367H (367H) or 367. GE writing and comm course: level 2.

**2367H Persuasive Communication** U 3

Principles of persuasion as reasoned discourse.  
Prereq: Honors standing, English 1110, and Soph standing. Not open to students with credit for Comm 2367. GE writing and comm course: level 2.

**2511 Visual Communication Design** U 3

The examination of visual symbols, graphics, photographs, art, movies and video, and their impact on society.  
Prereq: Enrollment in Comm, Journal or AgrComm major/minor. Not open to students with credit for 311.

**2540 Introduction to Communication Technology** U 3

This course is designed as an introduction to major communication technologies. The course will consider a range of older media and contemporary new media, with a focus on societal, relational, and psychological effects.  
Prereq: Not open to students with credit for 240.

**2596 An Introduction to Health, Environment, Risk & Science Communication** U 3

Provides a general introduction to the fields of science, risk, environmental and health communication from multiple perspectives including psychological, social, and cultural. Students will develop a prototype communication intervention or campaign to address a health, safety, or environmental issue drawing on theories and research covered in the course. GE cross-disciplinary seminar course.

**2704 Language, Culture & Communication in Latino Health** U 3

Examines how language, culture & communication shape the healthcare experiences of Latinos in the US. Considers the individual & social factors contributing to health inequalities and key theories & techniques for developing health communication interventions. Team-taught with a faculty member in the Department of Spanish & Portuguese.  
Prereq: Not open to students with credit for Spanish 2504. GE diversity soc div in the US course. Cross-listed in Spanish 2504.

**3160 Communication Research Methods** U 4

This course provides an overview of quantitative research methods as they apply to communication research. Students will gain an understanding of how to conduct research, as well as hands-on experience with data collection and data analysis.  
Prereq: Stat 1350, 1450, or equiv. Not open to students with credit for 2160H or 2163.

**3163 Communication Industry Research Methods** U 4

This course (1) introduces students to traditional and state-of-the-art methods in communication industry and (2) describes how these methods can be used to answer important questions in communication industry.  
Prereq: Stat 1350, 1450, or equiv. Not open to students with credit for 2160H or 2160.

**3165 Evaluation and Usability Testing** U 4

Application of electronic research through the design, implementation, and reporting of an online data collection or technology-based project.  
Prereq: Stat 1350, 1450, or equiv.

**3188 The PRACTICE Experience** U 1 - 3

Students will obtain first-hand experience as to how a real communication agency works with multiple deadlines and deliverables. From strategic communication research to content creation to delivery to evaluation, the course will produce opportunities to learn more about elements of the account process and work with real clients.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**3189 Freelance Journalism Experience** U 1 - 3

Practicing journalism as a freelance reporter.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

**3225 Photojournalism** U 3

Practice in journalistic and documentary photography.

**3226 Multimedia Journalism** U 4

Multimedia journalism, including relevant theories and practices, and hands-on instruction and experience creating an original news-oriented web site.  
Prereq: 2221 (421 and 422), or permission of instructor. Not open to students with credit for 426.

**3325 Introduction to Organizational Communication** U 3

Addresses prior and current approaches to the study of organizational communication.  
Prereq: Not open to students with credit for 325.

**3330 Communication and Conflict Management** U 3

An overview of the communication and conflict literature with emphasis on effective conflict management.  
Prereq: Not open to students with credit for 3330H (531H) or 531.

**3331 Communication and Decision Making** U 3

Decision-making as a process; comparisons between interpersonal, bargaining-negotiation contexts, and group organizations; descriptive and prescriptive models of decision-making in small groups and organizations.  
Prereq: Not open to students with credit for 631.

**3332 Risk Communication** U 3

Students will learn how to plan, implement and evaluate a risk communication effort. Message design is an integral part of this class.  
Prereq: Not open to students with credit for 632.

**3333 Crisis Communication** U 3

Managing strategic communication efforts during a crisis.

**3334 Strategic Message Design** U 3

Message development for marketing communications - strategic communications writing.  
Prereq: Enrollment in Comm, Journal, or AgrComm major/minor. Not open to students with credit for 634.

**3340 Principles of Environmental Campaigns** U 3

A seminar on the principles of strategic communication and campaigns around environmental and risk topics such as green marketing & advertising, environmental advocacy, social marketing, and environmental risk.

<b>3345</b>	<b>Strategic Media Planning</b>	<b>U</b>	<b>3</b>
Media planning for students interested in careers in advertising, public relations and other forms of strategic communication. Prereq: 2331 (431), and enrollment in Journ or Comm major, or permission of instructor. Not open to students with credit for 545.			
<b>3402</b>	<b>Crime and the News Media</b>	<b>U</b>	<b>3</b>
Study of the nature of news coverage of crime and the criminal justice system, and the implications for individuals, social groups, and society. Prereq: Not open to students with credit for 502.			
<b>3403</b>	<b>Sports Journalism</b>	<b>U</b>	<b>3</b>
This hands-on, active-learning course will teach the practice of sports journalism, specifically developing skills in writing, social media, multimedia, research and broadcasting.			
<b>3404</b>	<b>Media Law and Ethics</b>	<b>U</b>	<b>3</b>
This course will explore the theory, history, and ethical issues associated with free speech and free press areas of the First Amendment. Students will analyze key legal and ethical issues that affect journalism and media, with a focus on cases that have shaped media law and theories that help journalism professionals make decisions. Prereq: Not open to students with credit for 3404H.			
<b>3405</b>	<b>Introduction to Lantern TV</b>	<b>U</b>	<b>3</b>
This course will prepare students to work in television news. There will be a particular focus on writing, editing, and shooting video. Students will apply knowledge by creating and presenting news content. Students will leave this course ready for internships at television stations or Internet news outlets. Prereq: Theatre 3351, or permission of instructor.			
<b>3413</b>	<b>Media Entertainment</b>	<b>U</b>	<b>3</b>
Explores speculation, theory, and research regarding effects and appeal of media entertainment, emphasizing emotional reactions. Prereq: Not open to students with credit for 613.			
<b>3414</b>	<b>Sports Media Relations</b>	<b>U</b>	<b>3</b>
This hands-on, active-learning course will teach the theory and practice of sports media relations, developing strategic communication skills including writing, social media and multimedia, which will prepare students for sports media careers at the collegiate or professional sports levels.			
<b>3415</b>	<b>Sports, Mass Media &amp; Society</b>	<b>U</b>	<b>3</b>
Sports communication is a growing area of study within the communication discipline, as scholars recognize the increasingly important role media play in conveying and shaping sports and society. This course will examine the intersection of sports, society, and the media, by exploring historical and current issues in sports that shape our ideas, perspectives, and assumptions about U.S.			
<b>3425</b>	<b>Media Management</b>	<b>U</b>	<b>3</b>
Introduction to media management with a focus on how issues of management apply to various media. Prereq: Not open to students with credit for 425.			
<b>3440</b>	<b>Mass Communication and Society</b>	<b>U</b>	<b>3</b>
This course is designed to promote an understanding of basic mass communication practice. Prereq: Not open to students with credit for 642.			
<b>3442</b>	<b>Violence in Society and Violence in the Media</b>	<b>U</b>	<b>3</b>
Issues in the psychology of media presentations of violence. Prereq: Not open to students with credit for 2442. GE soc sci indivs and groups course.			
<b>3444</b>	<b>Advertising and Society</b>	<b>U</b>	<b>3</b>
Examination of positive and negative contributions of advertising in the American mass media system to society from political, sociological, and economic perspectives. Prereq: Not open to students with credit for 644.			
<b>3450</b>	<b>Media and Citizenship</b>	<b>U</b>	<b>3</b>
This course provides an overview of media's role in citizenship by learning about media industry operations, how media influence us, critical evaluation of media, media responsibility and literacy, and how our experiences and biases affect the current relationship between mass media and democracy. We will learn how to engage with media to promote informed, active, and responsible citizenship.			
<b>3466</b>	<b>Communication and Popular Culture</b>	<b>U</b>	<b>3</b>
Communication causes and impacts of changing technological environment where traditional differences between cultural products, folk, mass, popular, low, elite, high, knowledge, journalistic, and informational are disappearing.			
<b>3513</b>	<b>Video Games and Society</b>	<b>U</b>	<b>3</b>
A broad overview of the effects of video game play on society. Students critique the literature on this topic and design their own study to test video game effects.			
<b>3545</b>	<b>Human-Computer Interaction &amp; User Experience</b>	<b>U</b>	<b>3</b>
This course is an introduction to human-computer interaction (HCI) and user experience (UX). The goal of this class is to help you learn how to design usable interactive technologies. We will consider what constitutes good design, study a variety of ways to conceptualize design problems, examine how users' cognitive abilities and emotions influence design, and learn about interfaces.			

<b>3554</b>	<b>Social Implications of Communication Technology</b>	<b>U</b>	<b>3</b>
Analyze the individual, interpersonal, and societal impact of digital and Internet technologies such as blogs, wikis, online dating sites, mobile telephony, texting, apps, social media sites, video games, virtual reality, and online virtual worlds. Covers important issues that cut across multiple technologies, such as privacy, digital deception, and cyberbullying. Prereq: Not open to students with credit for 654.			
<b>3558</b>	<b>Social Media</b>	<b>U</b>	<b>3</b>
This course functions to help students (1) acquire theoretical and practical knowledge about social media and (2) understand the ways in which social media influence individuals, groups, and society. Prereq: Not open to students with credit for 4554.			
<b>3597.01</b>	<b>International Perspectives on Communication</b>	<b>U</b>	<b>3</b>
Perspectives on communication media from different parts of the world. Prereq: Not open to students with credit for 597. GE diversity global studies and cross-disciplinary seminar course.			
<b>3597.02</b>	<b>Media and Terrorism</b>	<b>U</b>	<b>3</b>
Focuses on the portrayal of terrorism in the media and on how terrorists use the media to influence public opinion. Prereq: Jr or Sr standing. Not open to students with credit for 597.01. GE diversity global studies and cross-disciplinary seminar course.			
<b>3620</b>	<b>Introduction to Interpersonal Communication</b>	<b>U</b>	<b>3</b>
Analysis of the role of interpersonal communication to begin relationships, achieve intimacy, sustain a certain relational status and terminate relationships. Prereq: Not open to students with credit for 320.			
<b>3624</b>	<b>Communication in Personal Relationships</b>	<b>U</b>	<b>3</b>
Advanced level survey of theory and research concerning the role of communication in he development, maintenance, and decay of interpersonal relationships. Prereq: Not open to students with credit for 624.			
<b>3628</b>	<b>Contemporary Persuasion Theory</b>	<b>U</b>	<b>3</b>
Persuasion theories and issues in mass audience settings; persuasion in interpersonal contexts, including organizations, communities, family, and personal relationships.			
<b>3629</b>	<b>Language and Social Interaction</b>	<b>U</b>	<b>3</b>
Examination of perspectives on and ways to analyze language use in everyday contexts, discourse in society, implications for communication theory, practice, and competencies. Prereq: Not open to students with credit for 629.			
<b>3662</b>	<b>Communication and Gender</b>	<b>U</b>	<b>3</b>
Examination of contemporary communication theory, method, and practice relevant to gender issues. Prereq: Not open to students with credit for 662.			
<b>3667</b>	<b>Nonverbal Communication</b>	<b>U</b>	<b>3</b>
Theory and research on communication that does not use words. Prereq: Not open to students with credit for 435.			
<b>3668</b>	<b>Intercultural Communication</b>	<b>U</b>	<b>3</b>
An examination of the role of intercultural communication in organizational contexts and the attendant effects on the creation and transmission of cultural consciousness, knowledge, tradition, and practices. Prereq: Not open to students with credit for 368.			
<b>3800</b>	<b>Career Development in Communication</b>	<b>U</b>	<b>3</b>
This course overviews various career paths for students pursuing degrees in Journalism and Communication by using career development theories to develop their career planning skills. Strategies and ethical practices for career planning are applied to each major specialization for business and non-profit occupations.			
<b>4190</b>	<b>Journalism and Communication Co-Operative Learning Experience</b>	<b>U</b>	<b>0 - 12</b>
Allows students to participate in a full immersion professional experience in a career-related position. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>4191</b>	<b>Internship</b>	<b>U</b>	<b>1 - 3</b>
On-the-job internships in communication practice or research conducted under supervision of internship coordinator through the undergraduate advising office. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Students make extensive and significant studies in the field of journalism or communication. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 12</b>
Regular class meetings and group discussion of specified problems. Repeatable.			

## 100 Communication

**4202 Feature Writing** U 3

This hands-on, active-learning course will teach students how to identify, research, report and write non-fiction feature articles that combine fact-based journalistic writing with non-fiction writing techniques, including characters development, description and narrative arc.

**4221 Data Journalism in Enterprise Reporting** U 4

A capstone experience devoted to enterprise journalism that springs from computer assisted reporting techniques and presented through the use of traditional print and multimedia journalism. Prereq: 2221 (421 and 422), and enrollment in Comm, Journal, or AgrComm major. Not open to students with credit for 621.

**4240 Science Communication** U 3

Explores the structure, meanings and implications of "science communication" with an emphasis on how values, attitudes, social structure, and communication affect public perceptions of science and technology.

Prereq: Not open to students with credit for 4240H (640H), 3240H, or 640.

**4337 Public Communication Campaigns** U 4

Application of management techniques to public relations; public relations strategy; campaign development.

Prereq: 2331 (431), and enrollment in Comm or Journal major; or permission of instructor. Not open to students with credit for 637.

**4401 Mass Communication and Youth** U 3

Introduction to theories and research on the uses and effects of media on children and adolescents, including discussion of interventions.

Prereq: Not open to students with credit for 501.

**4445 Stereotypes in Media** U 3

Expose students to the existence and impact of stereotypes in various forms of media.

Prereq: Not open to students with credit for 645.

**4511 User-Centered Communication Design** U 3

Concepts and principles of user-centered design and application of skills to multimedia design. Prereq: Comm 2511 (311), or Design 320, 570, 571, or 573, or permission of instructor. Not open to students with credit for 611.

**4555 Computer Interface and Human Identity** U 3

Surveys computer phenomena such as artificial intelligence, agents, avatars, virtual worlds, and humanoid robots, and identities such as humanness, race, gender and sexuality.

Prereq: Not open to students with credit for 655.

**4556 Information Technology and Organizational Communication** U 3

Focus on the role of various technologies within organizations and for work team members. Prereq: Not open to students with credit for 656.

**4557 Communication Network Infrastructure** U 3

Introduction to the concepts and principles that underlie contemporary telecommunication networks with the opportunity to apply these concepts to the analysis of novel systems.

Prereq: 2540 (240). Not open to students with credit for 657.

**4558 Social Media Analytics** U 3

This course is an introduction to analyzing social media data. Students will learn how to operate an established analytics platform and complete a novel research project using real world social media data. Students will learn how to tackle industry and academic research problems using social media logs and metrics.

Prereq: 3160, 3163, or 3165.

**4600 Communication and Emotion** U 3

Introduction to research about emotion in mediated communication. Applications in domains of students' choice (e.g. sports communication, entertainment, advertising, online communication, news, public affairs communication, etc.).

**4635 Communication Dynamics in Groups** U 3

This class examines how communication dynamics affect group performance in organizations through topics such as: communication roles and norms, effective communication in teamwork and decision-making, leadership, group cohesion, managing conflict and using communication technologies.

**4665 Human Communication in Social Networks** U 3

Communication creates a relationship between individuals in various ways, and the large set of these relationships form networks. In this class, our task will be to observe and understand the various ways in which communication may be directly observed or inferred and the consequences that such communication has for humans who are embedded in networks.

**4736 Health Communication in Interpersonal Contexts** U 3

Study of communication relevant to health care in various face-to-face contexts.

Prereq: Not open to students with credit for 636.01.

**4737 Health Communication in Mass Mediated Contexts** U 3

Overview of theory and research related to the role of mass media as they affect the public's health behavior.

Prereq: Not open to students with credit for 636.02.

**4738 Health Communication and New Media** U 3

Focuses on the current and future uses of technology in health communication with an emphasis on technology in both patient-provider relationships and health campaigns.

Prereq: Not open to students with credit for 638.

**4797 Study at a Foreign Institution** U 1 - 12

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

Prereq: Permission of department chair. Repeatable to a maximum of 36 cr hrs or 36 completions. This course is progress graded.

**4814 Political Communication** U 3

Analysis of the roles played by the mass media, public leaders, and accidental circumstances in the development of issues and images in contemporary American political communication.

Prereq: Enrollment in Comm or Journal major, or permission of instructor. Not open to students with credit for 614.

**4820 Public Opinion and Communication** U 3

Investigation of public opinion from social, political, and psychological perspectives, and study of the role communication (including the media) plays in the process.

Prereq: Not open to students with credit for 620 or 620H.

**4998 Undergraduate Research** U 1 - 15

Supervised collaborative research in Communication.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 8 completions. This course is graded S/U.

**4999 Thesis Research** U 1 - 12

Individualized instruction in an independent research project.

Prereq: A grade of A in at least half of all Comm courses taken and an average of B in the remainder, and Jr or Sr standing in Journalism or Communication, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**4999H Honors Thesis Research** U 1 - 12

Individual advising for an honors thesis project.

Prereq: Honors and Sr. standing in Comm or Journal and permission of instructor. Not open to students with credit for 783H. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**6500 Introduction to Graduate Study** G 1

An overview of graduate study in Communication. Research and teaching resources, procedures, and expectations, areas of study and faculty interests.

Prereq: Grad standing, or instructor permission and Grad School approval for undergrad credit. This course is graded S/U.

**6661 Statistical Applications in Communication I** G 3

Fundamental principles of statistics commonly used in communication research.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 661.

**6701 Working with Communication Data** G 3

Techniques for coding, entering and maintaining data sets in preparation for thesis or other research activities. Includes logical coding, documentation, mapping responses to numerical representations, assessing reliability, merging files, maintaining confidentiality via ID codes and other topics.

Prereq: Grad standing.

**6760 Communication Research Methods** G 3

An overview of empirical research methods in communication.

Prereq: Grad standing. Not open to students with credit for 760.

**6806 Contemporary Theories of Communication** G 3

Overview of contemporary approaches to the study of communication.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 806.

**6807 Foundations of Communication Theory** G 3

A historical overview of the major theories and research that led to the development of the field of communication.

Prereq: 6806 (806) and Grad standing; or permission of instructor. Not open to students with credit for 807.

**7710 Introduction to Social Networks** G 3

Focuses on the theoretical and methodological bases of social network analysis.

Prereq: Grad standing, and enrollment in Comm or Social program; or permission of instructor. Not open to students with credit for Social 7710. Cross-listed in Social.

**7712 Seminar in Social Networks** G 3

The theory, substance, and methods for understanding patterns, causes, and consequences of relationships among populations of actors. Social 6649 and 6581 recommended.

Prereq: Grad standing, and enrollment in Comm or Social program; or permission of instructor. Not open to students with credit for Social 7712. Cross-listed in Social.

**7713 Political Communication** G 3

A graduate-level examination of the role of communication in American politics, acquainting the student with the literature on political communication and stimulating ideas for original research in the field of political communication.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 713. Cross-listed in PolitSc 7168.

<b>7789</b>	<b>Survey Research Practicum</b>	<b>G</b>	<b>3</b>
Hands-on applications for students interested in the planning, implementation and analysis of a scientific sample survey. Prereq: Admission to grad survey research, or permission of instructor. Not open to students with credit for 7789 or 789 in Econ, PolitSc, Stat, AEDEcon, AgrEduc, BusML, EduPL, Geog, Psych, PubHlth, or PubAfrs. Cross-listed in PolitSc, Econ, and Stat.			
<b>7790</b>	<b>Statistical Applications in Communication II</b>	<b>G</b>	<b>3</b>
Survey of research methods and practical experience in conducting a research project. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 790.			
<b>7802</b>	<b>Narrative and Communication</b>	<b>G</b>	<b>3</b>
Integrated reading and research in communication narrative. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 802.			
<b>7813</b>	<b>Public Opinion and Communication</b>	<b>G</b>	<b>3</b>
Discusses the central role of communication in the concept of public opinion. Reviews research on the influence of communication on public opinion direction and quality. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 813.			
<b>7840</b>	<b>Mass Communication and the Individual</b>	<b>G</b>	<b>3</b>
Survey of theory and research in mass communication dealing with psychological aspects of mass communication. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 840.			
<b>7841</b>	<b>Mass Communication and the Social System</b>	<b>G</b>	<b>3</b>
Survey of mass communication theory at the macro or sociological level. Seminar covers social theories shaping media content and theories of media influence or effects. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 841.			
<b>7850</b>	<b>Communication Technology</b>	<b>G</b>	<b>3</b>
Theory and research on the uses and effects of communication technology. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 850.			
<b>7851</b>	<b>Human-Computer Interaction</b>	<b>G</b>	<b>3</b>
This course is one of two seminars offered as part of the communication technology focus area of the School of Communication graduate program. The focus of this course is on experiences with technology, including technological adoption and use; affordances across digital platforms; usability; and elements of interface design and their psychological, interpersonal, social and cultural implications.			
<b>7870</b>	<b>Media, Campaigns and Health</b>	<b>G</b>	<b>3</b>
How mediated communication can influence human behavior and public policy in ways that can improve (or can negatively impact) human health and well-being. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 870.			
<b>7871</b>	<b>Health Communication in Interpersonal Settings</b>	<b>G</b>	<b>3</b>
Introduce students to the research and theories comprising contemporary literature in health communication in interpersonal settings. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 871.			
<b>7890</b>	<b>Colloquium</b>	<b>G</b>	<b>1</b>
Colloquium. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>7927</b>	<b>Theory Construction</b>	<b>G</b>	<b>3</b>
The formal principles of theory and model construction function as criteria for examining the strengths and weaknesses of communication research models. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 927.			
<b>7998</b>	<b>Directed Research</b>	<b>G</b>	<b>1 - 3</b>
Directed research. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 12</b>
Thesis research. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 3 completions. This course is graded S/U.			
<b>8193</b>	<b>Directed Reading</b>	<b>G</b>	<b>1 - 3</b>
Directed reading. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8801</b>	<b>Special Topics in Communication Research Methods</b>	<b>G</b>	<b>3</b>
In-depth study of particular methods in the field of communication. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs.			
<b>8940</b>	<b>Special Topics in Mass Communication</b>	<b>G</b>	<b>3</b>
Advanced seminar on current research in mass communication. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>8970</b>	<b>Special Topics in Communication</b>	<b>G</b>	<b>3</b>
Advanced seminar on current research cutting across sub-fields of communication. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.			

<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 6</b>
Dissertation research. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions. This course is graded S/U.			

## Community Leadership

<b>1100</b>	<b>Exploring Agricultural Communication, Education, and Leadership</b>	<b>U</b>	<b>½</b>
Basic understanding of global trends within agricultural communication, agricultural education, and community leadership, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.			
<b>2100.01</b>	<b>Foundations of Leadership I</b>	<b>U</b>	<b>1</b>
This course focuses on the foundations of leadership. Topics include introductory leadership theories and concepts with a focus on personal development, leadership style, and self-discovery. This CCP course is offered as a part of an off-campus, community-embedded program in cooperation with the Department of Agricultural Communication, Education, and Leadership. Selection into an approved partner program with the Department of Agricultural Communication, Education, and Leadership (such as OSUE's LOOK to Ohio) required for enrollment.			
<b>2100.02</b>	<b>Foundations of Leadership II</b>	<b>U</b>	<b>2</b>
This course focuses on the foundations of leadership. Topics include introductory leadership theories and concepts with a focus on developing relationships with others. Topics include diversity, communication, and teamwork. This CCP course is offered as a part of an off-campus, community-embedded program in cooperation with the Department of Agricultural Communication, Education, and Leadership. Selection into an approved partner program with the Department of Agricultural Communication, Education, and Leadership (such as OSUE's LOOK to Ohio) required for enrollment.			
<b>2189</b>	<b>Early Experience in Community and Extension Education</b>	<b>U</b>	<b>1</b>
The early experience program is designed to help students explore careers and gain experience in Community and Extension Education. Prereq: Permission of instructor. Not open to students with credit for AEE 280.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Planning, conducting, and reporting a special study appropriate to the needs of the student. Prereq: CPHR 2.50 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is progress graded (S/U).			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group studies for students in specialized programs. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>2530</b>	<b>Introduction to Agricultural Communication, Education, and Leadership</b>	<b>U</b>	<b>2</b>
Creating an awareness and understanding of the agricultural communication, education and leadership profession. The class will provide a basis for educating, communicating, and leading by synthesizing theoretical knowledge with practical application. Prereq: Not open to students with credit for AEE 230 or AgrComm 200.			
<b>2530E</b>	<b>Introduction to Agricultural Communication, Education, and Leadership</b>	<b>U</b>	<b>2</b>
Creation of an awareness and understanding of the agricultural communication, education and leadership profession. Provides a basis for educating, communicating, and leading by synthesizing theoretical knowledge and practical application. Prereq: Honors standing.			
<b>3330</b>	<b>Program Development and Evaluation</b>	<b>U</b>	<b>3</b>
Introductory skills necessary to develop, deliver, and evaluate educational programs. Students will examine the principles, methods, and models of program development and evaluation.			
<b>3530</b>	<b>Foundations of Personal and Professional Leadership</b>	<b>U</b>	<b>3</b>
Leadership theories, principles, and concepts. Research-based theories, methods of social scientific inquiry, individual strengths, personal leadership philosophy and vision, concepts of diversity and ethics, and professional development plan. Prereq: Not open to students with credit for AEE 342.			
<b>3530E</b>	<b>Foundations of Personal and Professional Leadership</b>	<b>U</b>	<b>3</b>
Leadership theories, principles, and concepts. Research-based theories, methods of social scientific inquiry, individual strengths, personal leadership philosophy and vision, concepts of diversity and ethics, and professional development plan. Prereq: Honors standing. Not open to students with credit for AEE 342.			
<b>3535</b>	<b>Toward Cultural Proficiency</b>	<b>U</b>	<b>3</b>
Learner effectiveness in multicultural, multiracial learning environments. Strategies for obtaining insight into learners from varied cultures. Theory will connect practice through service-learning using cognitive, affective and psychomotor domains. Prereq: Not open to students with credit for AEE 594. GE cultures and ideas and diversity soc div in the US course.			

## 102 Community Leadership

<b>3537</b>	<b>Data Analysis in the Applied Sciences</b>	<b>U</b>	<b>3</b>
The purpose of this course is to develop an overview and basic understanding of descriptive and inferential statistics. Prereq: Math 1130 (130) or 1148 (148). Not open to students with credit for AEE 387. GE data only course. MA Admis Cond course.			
<b>4191</b>	<b>Internship in Community Leadership</b>	<b>U</b>	<b>1 - 2</b>
Provides students in the Community Leadership program with an experiential learning opportunity to practice and apply knowledge and skills learned in an authentic setting. Open to Community Leadership Majors with a Leadership Specialization. Prereq: Enrollment in ComLdr major with Leadership Specialization, and permission of instructor. Not open to students with credit for AEE 489. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Community Leadership</b>	<b>U</b>	<b>1 - 3</b>
Specialized topics in leadership or community and extension education. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>4430</b>	<b>Leadership in Teams and Community Organizations</b>	<b>U</b>	<b>3</b>
Principles and strategies involved in leading teams and community organizations. Students will examine leadership dynamics in small groups and reflect on applications in various settings. Team service project with student or community organization. Prereq: Not open to students with credit for AEE 442.			
<b>4480</b>	<b>Capstone in Leadership</b>	<b>U</b>	<b>3 - 4</b>
Application of leadership theories, principles, concepts, and skills in a setting aligned with the student's academic and/or career interests. Students will plan, conduct, reflect, and report the project in conjunction with a faculty supervisor. Prereq: Permission of instructor. This course is graded S/U.			
<b>4530</b>	<b>Senior Transition from College</b>	<b>U</b>	<b>3</b>
Designed to serve as a "transition" course for seniors at The Ohio State University, preparing them for their first professional position. Students will synthesize their knowledge and skills developed while at OSU and learn how transition those talents into practical application. Prereq: Sr standing.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Conducting and reporting an undergraduate research project. Prereq: Permission of instructor. This course is graded S/U.			
<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>1 - 6</b>
Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum. Prereq: GPA 3.0 or above, and GPA 3.0 or above in major, and permission of project supervisor. Not open to students with credit for 683H. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Research with Distinction - Honors</b>	<b>U</b>	<b>1 - 6</b>
Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the University's Denman Undergraduate Research Forum. Prereq: Honors standing, and FAES 4590.01H (590.01H), and CPHR 3.4 or above, and GPA 3.4 or above in major, and permission of honors project supervisor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5000</b>	<b>Leadership for Community Change</b>	<b>U G</b>	<b>3</b>
Leading change in a community setting is important to addressing complex, adaptive community challenges. This course will teach students how to work with a community (of place, interest, etc.) through the difficult process of change by engaging them in leadership development. This course is meant to serve as an advanced course for students learning about leadership. Prereq: ENR 3500, or permission of instructor.			
<b>5193</b>	<b>Individual Studies in Community Leadership</b>	<b>U G</b>	<b>1 - 3</b>
Planning, conducting and reporting a special study appropriate to the needs of the student. Prereq: CPHR 2.50 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in Community Leadership</b>	<b>U G</b>	<b>1 - 3</b>
Group studies for student in specialized programs. Repeatable to a maximum of 10 cr hrs or 5 completions.			
<b>5330</b>	<b>Methods of Teaching in Nonformal Learning Environments</b>	<b>U G</b>	<b>3</b>
Examining the teaching and learning process with emphasis on planning and delivering agricultural instruction for agribusiness, extension, and non-formal learning environments.			
<b>5335</b>	<b>Volunteer and Human Resource Management</b>	<b>U G</b>	<b>3</b>
Introductory skills in volunteer and human resource management for working in educational and non-profit organizations with paid and unpaid staff. Examination of principles, methods, and models and application with case studies. Prereq: Not open to students with credit for AEE 795.02.			

<b>5350</b>	<b>Youth Organizations and Program Management</b>	<b>U G</b>	<b>4</b>
Introduction to and analysis of youth organizations and youth program management. Theories, principles, and key concepts important for assuming leadership roles in contemporary youth organizations. Prereq: Not open to students with credit for both AEE 642 and 643.			
<b>5380</b>	<b>Internship in Community and Extension Education</b>	<b>U G</b>	<b>4</b>
Under the supervision of a Departmental faculty instructor and daily leadership of an experienced Extension educator at the county level, students will enhance their professional and technical competencies in Extension education. Concur: 5381 and 5382.			
<b>5381</b>	<b>Capstone in Community and Extension Education</b>	<b>U G</b>	<b>4</b>
The capstone brings together a student's theory and programmatic work during their undergraduate career and applies it to a cohesive pattern that related to applied professional Extension work settings. Concur: 5380 and 5382.			
<b>5382</b>	<b>Issues in Community and Extension Education</b>	<b>U G</b>	<b>4</b>
Explore past, current, and potential trends and issues related to Extension programming and apply them to professional settings. Students will learn about contemporary issues and how to use futuring and strategic planning tools to address the issues. Concur: 5380 and 5381.			
<b>5430</b>	<b>Professional Leadership Ethics</b>	<b>U G</b>	<b>3</b>
This course is designed to prepare students to meet the ethical challenges facing employees and other members of education, nonprofit organizations and business. The class will address moral issues at every organizational level - personal, interpersonal, group and system wide.			

### Comparative Studies

<b>1100</b>	<b>Intro to the Humanities: Cross-Cultural Perspectives</b>	<b>U</b>	<b>3</b>
Explores the role of literature and the arts in constructing, maintaining, and questioning the values and beliefs of diverse cultures and historical periods; topics vary. Prereq: Not open to students with credit for 1100H. GE lit and diversity global studies course.			
<b>1100H</b>	<b>Intro to the Humanities: Cross-Cultural Perspectives</b>	<b>U</b>	<b>3</b>
Explores the role of literature and the arts in constructing, maintaining, and questioning the values and beliefs of diverse cultures and historical periods; topics vary. Prereq: Honors standing. Not open to students with credit for 1100 (100H, 100). GE lit and diversity global studies course.			
<b>2099</b>	<b>The Question of Comparative Studies</b>	<b>U</b>	<b>1</b>
This course offers an introduction to the Comparative Studies major. It is designed to help students to take advantage of curricular, research, and advising opportunities; to manage the particular challenges of independent and interdisciplinary work; to link classroom work to social and political engagement with relevant communities; and to prepare for life after graduation. This course is graded S/U.			
<b>2101</b>	<b>Literature and Society</b>	<b>U</b>	<b>3</b>
Study of relationships among politics, society, and literature; analysis of social and political elements of literature and film from diverse cultures and historical periods. Prereq: English 1110 (110) or equiv. Not open to students with credit for 2101H (201H, 201). GE lit and diversity global studies course.			
<b>2101H</b>	<b>Literature and Society</b>	<b>U</b>	<b>3</b>
Study of relationships among politics, society, and literature; analysis of social and political elements of literature and film from diverse cultures and historical periods. Prereq: Honors standing, and English 1110 (110) or equiv. Not open to students with credit for 2101 (201, 201H). GE lit and diversity global studies.			
<b>2103</b>	<b>Literature and the Self</b>	<b>U</b>	<b>3</b>
Study of relationships between psychology and literature; analysis of psychological concepts and processes as represented in literature and film of diverse cultures and historical periods. Prereq: English 1110 (110) or equiv. Not open to students with credit for 2103H (203H) or 203. GE lit and diversity global studies course.			
<b>2104</b>	<b>Literature, Science, and Technology</b>	<b>U</b>	<b>3</b>
Study of relationships among literature, science, and technology; analysis of representations of science and technology in literature and film of diverse cultures and historical periods. Prereq: English 1110 or equiv. Not open to students with credit for 2104H. GE lit and diversity global studies course.			
<b>2104H</b>	<b>Literature, Science, and Technology</b>	<b>U</b>	<b>3</b>
Study of relationships among literature, science, and technology; analysis of representations of science and technology in literature and film of diverse cultures and historical periods. Prereq: Honors standing, and English 1110 or equiv. Not open to students with credit for 2104. GE lit and diversity global studies course.			
<b>2105</b>	<b>Literature and Ethnicity</b>	<b>U</b>	<b>3</b>
Study of relationships between literature and ethnicity; analysis of concepts of ethnicity as represented in literature and film of diverse cultures and historical periods. Prereq: English 1110 (110) or equiv. Not open to students with credit for 205. GE lit and diversity soc div in the US course.			



<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give students an opportunity for personal study with a member of the faculty. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>2194H</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Prereq: Honors standing or permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>2214</b>	<b>Introduction to Sexuality Studies</b>	<b>U</b>	<b>3</b>
Provides an introduction to sexuality studies through an interdisciplinary approach. To apply the knowledge learned, this course requires a fieldwork component. Prereq: Not open to students with credit for 214, EduPAES 214, or SxtySt 2214. GE diversity soc div in the US course. Cross-listed in SxtySt.			
<b>2220</b>	<b>Introduction to South Asia Studies</b>	<b>U</b>	<b>3</b>
A multi-disciplinary introduction to South Asia's geographical, political, cultural, and religious contexts and connections. Prereq: English 1110 (110) or equiv. Not open to students with credit for NELC 2220 or SAsia 2220. Cross-listed in SAsia. GE cultures and ideas and diversity global studies course.			
<b>2264</b>	<b>Introduction to Popular Culture Studies</b>	<b>U</b>	<b>3</b>
Introduction to the analysis of popular culture texts, with special emphasis on the relationship between popular culture studies and literary studies. Prereq: English 1110 (110) or equiv. Not open to students with credit for 264, or English 2264 (264). Cross-listed in English. GE cultures and ideas course.			
<b>2281</b>	<b>American Icons</b>	<b>U</b>	<b>3</b>
Interdisciplinary methods in American studies; emphasis on the plurality of identities in American culture. Prereq: English 1110 (110) or equiv. Not open to students with credit for 234. GE cultures and ideas and diversity soc div in the US course.			
<b>2301</b>	<b>Introduction to World Literature</b>	<b>U</b>	<b>3</b>
Analysis of oral and written literatures of diverse cultures and historical periods. Prereq: English 1110, or equiv. GE lit and diversity global studies course.			
<b>2321</b>	<b>Introduction to Asian American Studies</b>	<b>U</b>	<b>3</b>
Introduction to Asian American studies; history, experiences, and cultural production of Americans of Chinese, Japanese, Korean, South Asian, Filipino, and Southeast Asian ancestry. Prereq: English 1110 (110), or equiv. Not open to students with credit for 241. GE cultures and ideas course and diversity soc div in the US course.			
<b>2322</b>	<b>Introduction to Latino Studies</b>	<b>U</b>	<b>3</b>
Introduction to Latino studies; history, politics, and cultural production of Latino/a communities in the U.S. and its borderlands. Prereq: English 1110 (110) or equiv. Not open to students with credit for 242, or Spanish 2242. GE cultures and ideas and diversity soc div in the US course. Cross-listed in Spanish 2242.			
<b>2323</b>	<b>Introduction to American Indian Studies</b>	<b>U</b>	<b>3</b>
Explores the legal, cultural, historic, and political foundations, experiences, and perspectives and futures of American Indians in the U.S. Prereq: English 1110 or equiv. GE cultures and ideas and diversity soc div in the US course.			
<b>2340</b>	<b>Introduction to Cultures of Science and Technology</b>	<b>U</b>	<b>3</b>
Critical analysis of the multiple relations of science to society, with emphasis on knowledge, power, authority, values, and ethics. Prereq: English 1110 (110), or equiv. Not open to students with credit for 2341 (272). GE cultures and ideas and diversity global studies course.			
<b>2341</b>	<b>Technology, Science, and Society</b>	<b>U</b>	<b>3</b>
Critical analysis of the relations among science, technology, and culture, with particular emphasis on ethical issues in technology and engineering. Prereq: English 1110.01 (110.01) or equiv. Not open to students with credit for 2340 (272). GE cultures and ideas and diversity global studies course.			
<b>2350</b>	<b>Introduction to Folklore</b>	<b>U</b>	<b>3</b>
A general study of the field of folklore including basic approaches and a survey of primary folk materials: folktales, legends, folksongs, ballads, and folk beliefs. Prereq: English 1110 (110) or equiv. Not open to students with credit for English 2270 (270), or 2350H. GE cultures and ideas course. Cross-listed in English 2270.			
<b>2350H</b>	<b>Introduction to Folklore</b>	<b>U</b>	<b>3</b>
A general study of the field of folklore including basic approaches and a survey of primary folk materials: folktales, legends, folksongs, ballads, and folk beliefs. Prereq: Honors standing, and English 1110 (110) or equiv. Not open to students with credit for 2350, English 2270 (270), or 2270H. GE cultures and ideas course. Cross-listed in English 2270H.			

<b>2360</b>	<b>Introduction to Comparative Cultural Studies</b>	<b>U</b>	<b>3</b>
Introduction to interdisciplinary field of cultural studies; emphasis on relation of cultural production to power, knowledge, and authority, globally and locally. Prereq: English 1110 (110) or equiv. Not open to students with credit for 274. GE cultures and ideas course.			
<b>2367.02</b>	<b>U.S. Latino Identity</b>	<b>U</b>	<b>3</b>
Latino/a identity in the U.S.; emphasis on Latino/a cultural history and expression and on role of race, class, gender, and sexuality in identity construction. Prereq: English 1110 (110) or equiv, and Soph standing. Not open to students with credit for 367.04. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.04</b>	<b>Science and Technology in American Culture</b>	<b>U</b>	<b>3</b>
Role of science and technology in contemporary American society; their relationship to human values; sources of concern about their impact; evaluation of selected issues. Prereq: English 1110 (110), or equiv, and Soph standing. Not open to students with credit for 2367.04H (367.02H) or 367.02. GE writing and comm: level 2 and cultures and ideas and diversity soc div in the US course.			
<b>2367.07</b>	<b>Religious Diversity in America</b>	<b>U</b>	<b>3</b>
Exploration of the concept of religious freedom and the position of minority religious groups in American society. Prereq: English 1110 (110) or equiv and Soph standing. Not open to students with credit for 367.03. GE writing and comm: level 2 and cultures and ideas and diversity soc div in the US course.			
<b>2367.08</b>	<b>American Identity in the World</b>	<b>U</b>	<b>3</b>
American culture viewed from inside and from the perspective of foreign cultures, as seen in literature, film, art, music, journalism, folklore, and popular culture. Prereq: English 1110, or equiv, and Soph standing. Not open to students with credit for 2367.08H. GE writing and comm: level 2 and cultures and ideas and diversity soc div in the US course.			
<b>2420</b>	<b>American Food Cultures</b>	<b>U</b>	<b>3</b>
Historical perspective on the development of the American food system, including associated discourses and cultures, leading to exploration of contemporary concerns about industrial food, the American diet, and the politics surrounding these issues. GE cultures and ideas and diversity soc div in the US course.			
<b>2797</b>	<b>Introductory Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 30</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Prereq: Permission of Department. Repeatable to a maximum of 30 cr hrs.			
<b>2864H</b>	<b>Modernity and Postmodernity: Issues and Ideas</b>	<b>U</b>	<b>3</b>
Examination of some of the defining ideas of modern thought and how those ideas have problematically affected modern life in both developed and developing countries. Prereq: Honors standing and English 1110 (110) or equiv. Not open to students with credit for 240H or 240. GE lit and diversity global studies course.			
<b>3052</b>	<b>Mediterranean Voyages: Migration and Travel</b>	<b>U</b>	<b>3</b>
An exploration of human movement in the contemporary Mediterranean: tourism vs. migration. Survey of the historical varieties of travel in the Mediterranean and the examination of contemporary written and filmed narratives of migration in the Mediterranean zone. Prereq: English 1110 or equiv. Not open to students with credit for Italian 3052. GE cultures and ideas and diversity global studies course. Cross-listed in Italian.			
<b>3302</b>	<b>Translating Literatures and Cultures</b>	<b>U</b>	<b>3</b>
Introduction to issues and problems inherent to translating literatures and cultures. Prereq: English 1110 (110), or equiv. Not open to students with credit for 3302E (373E) or 373. GE cultures and ideas and diversity global studies course.			
<b>3302E</b>	<b>Translating Literatures and Cultures</b>	<b>U</b>	<b>3</b>
Introduction to issues and problems inherent to translating literatures and cultures. Prereq: Honors standing, and English 1110 (110), or equiv. Not open to students with credit for 3302 (373) or 373E. GE cultures and ideas and diversity global studies course.			
<b>3360</b>	<b>Introduction to Globalization and Culture</b>	<b>U</b>	<b>3</b>
History and contemporary dimensions of globalization, focusing on period preceding European hegemony, era of European colonialism, period of decolonization, and contemporary contexts. Prereq: Soph standing, or permission of instructor. Not open to students with credit for 357.			
<b>3501</b>	<b>Humanitarianism in Question</b>	<b>U</b>	<b>3</b>
This course addresses questions related to the history, practices, institutional dimensions, impact, criticism, and function of humanitarian and philanthropic work. Students learn about relationships between donors and targeted communities, both domestically and abroad. Discussions reflect upon reasons for giving, the goals of the supported initiatives, and mechanisms for evaluating success. Repeatable to a maximum of 6 cr hrs. GE cultures and ideas course.			
<b>3603</b>	<b>Love in World Literature</b>	<b>U</b>	<b>3</b>
Representations of love in world literature; emphasis on mythological, psychological, and ideological aspects of selected representations in different cultures and time periods. Prereq: English 1110 (110), or equiv. Not open to students with credit for 3603H (301H) or 301. GE lit and diversity global studies course.			

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<b>3606</b>	<b>The Quest in World Literature</b>	<b>U</b>	<b>3</b>
Motif of the quest in world literature; physical and mental journeys as metaphors of personal transformation and salvation. Prereq: English 1110 (110) or equiv. Not open to students with credit for 306. GE lit and diversity global studies course.			
<b>3607</b>	<b>Film and Literature as Narrative Art</b>	<b>U</b>	<b>3</b>
Relationships between film and literature; emergence of cinematic art as a form of representation with emphasis on diverse cultural traditions. Prereq: English 1110 (110) or equiv. Not open to students with credit for 3607H (358H, 358). GE VPA and diversity global studies course.			
<b>3608</b>	<b>Representations of the Experience of War</b>	<b>U</b>	<b>3</b>
Representations of war in works of literature, religious texts, and film from diverse cultures and time periods. Prereq: English 1110 (110) or equiv. Not open to students with credit for 308. GE lit and diversity global studies course.			
<b>3620</b>	<b>Everyday Life in South Asia</b>	<b>U</b>	<b>3</b>
An examination of everyday life as experienced by members of the culturally diverse population of South Asia. Prereq: English 1110 or equiv. Not open to students with credit for NELC 3620 or SAsia 3620. GE cultures and ideas course. Cross-listed in SAsia.			
<b>3645</b>	<b>Cultures of Medicine</b>	<b>U</b>	<b>3</b>
Humanistic, scientific, and clinical perspectives on medical issues; literary uses of medical themes; medicine as art and science. Prereq: English 1110 (110) or equiv. Not open to students with credit for 3645H (305). GE cultures and ideas and diversity global studies course.			
<b>3645H</b>	<b>Cultures of Medicine</b>	<b>U</b>	<b>3</b>
Humanistic, scientific, and clinical perspectives on medical issues; literary uses of medical themes; medicine as art and science. Prereq: Honors standing, and English 1110 (110) or equiv. Not open to students with credit for 3645 (305). GE cultures and ideas and diversity global studies course.			
<b>3646</b>	<b>Cultures, Natures, Technologies</b>	<b>U</b>	<b>3</b>
Cultural perspectives on issues related to technology, nature, and culture; examines cultural approaches to uses of technology and their relation to natural and human worlds. Prereq: English 1110 (110), or equiv. GE cultures and ideas course.			
<b>3661</b>	<b>The City and Culture</b>	<b>U</b>	<b>3</b>
Introduction to the comparative and cross-cultural study of cities, urban culture, and urbanism. Prereq: One course in CompStd or IntStd, or permission of instructor. Not open to students with credit for 4661 (531) or IntStd 4661 (531) or IntStd 3661. Cross-listed in IntStd.			
<b>3686</b>	<b>Cultural Studies of American Musics</b>	<b>U</b>	<b>3</b>
Investigation of the social, political, and cultural contexts of the development of popular musics in the U.S. Prereq: English 1110 or equiv. GE VPA and diversity soc div in the US course.			
<b>3692</b>	<b>Comparative Social Movements</b>	<b>U</b>	<b>3</b>
Comparative and interdisciplinary analysis of social movements and theories about social movement in various global contexts. GE cultures and ideas and diversity global studies course.			
<b>3797</b>	<b>Topical Study at Foreign Institution</b>	<b>U</b>	<b>1 - 30</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Prereq: Permission of Department. Repeatable to a maximum of 30 ch hrs.			
<b>3798</b>	<b>Japanese Popular Culture</b>	<b>U</b>	<b>3</b>
This course takes up Japanese popular culture in order to get at big questions about nationalism and cosmopolitanism, appropriation and authenticity, and being human in a world of commodities. This is an intensive summer course: two weeks in Columbus and two weeks in Japan, where we will be based in Tsukuba and make trips to Tokyo, Kyoto, Osaka, and Uji. Knowledge of Japanese is not required. Prereq: English 1110. GE diversity global studies and education abroad course.			
<b>3808</b>	<b>Utopia and Dystopia</b>	<b>U</b>	<b>3</b>
Exploration and critique of utopian thinking in different historical and cultural contexts. Prereq: English 1110 (110) or equiv. Not open to students with credit for 4808 (508).			
<b>3903</b>	<b>World Literature: Theory and Practice</b>	<b>U</b>	<b>3</b>
Discussion of world literatures in theoretical, historical, and cultural contexts, with particular attention to translation, language, nationalism, globalization, and internationalism. Prereq: 2301 (273), 3302 (373), or 3302E (373E). Not open to students with credit for 4903 (573), 4903E (573E), or 3903E.			
<b>3990</b>	<b>Approaches to Comparative Studies</b>	<b>U</b>	<b>3</b>
Introduces comparative studies majors to theoretical tools, methods of investigation, and key concepts in comparative studies research and scholarship. Prereq: English 1110 (110) or equiv. CompStd major, or permission of instructor. Not open to students with credit for 398.			

<b>4191</b>	<b>Research Internship in Comparative Studies</b>	<b>U</b>	<b>1 - 3</b>
Intensive research experience in Comparative Studies; individualized research training; students collaborate closely with faculty member on research project; projects either student-initiated or faculty research. Prereq: English 1110 (110) or equiv. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give students an opportunity for personal study with a member of the faculty. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4597.01</b>	<b>Global Studies of Science and Technology</b>	<b>U</b>	<b>3</b>
Explores relations among culture, science, and technology in changing global contexts. Previous completion of 2367.02 or 367.02 recommended. Prereq: Completion of a Second Writing course and Natural Science sequence, or permission of instructor. Not open to students with credit for 597.01. GE diversity global studies and cross-disciplinary seminar course.			
<b>4597.02</b>	<b>Global Culture</b>	<b>U</b>	<b>3</b>
Examines contemporary global cultural flows, the concepts useful in analyzing them, and the questions they raise about power and cultural change. Prereq: Completion of Second Writing course. Not open to students with credit for 597.02. GE diversity global studies and cross-disciplinary seminar course.			
<b>4597.03</b>	<b>Global Folklore</b>	<b>U</b>	<b>3</b>
Examines contemporary folklore around the world; introduces students to key concepts in folklore scholarship; focuses on transmission and transformation of cultural knowledge and practice, particularly in situations of conflict or upheaval. Prereq: Completion of a Second Writing course. Not open to students with credit for 597.02. GE diversity global studies and cross-disciplinary seminar course.			
<b>4685</b>	<b>Comparative Ethnic and American Studies</b>	<b>U</b>	<b>3</b>
Examines relationships between interdisciplinary fields of American Studies and Ethnic Studies.			
<b>4803</b>	<b>Studies in Asian American Literature and Culture</b>	<b>U</b>	<b>3</b>
Focused study of a topic in Asian American literary and cultural studies. Prereq: English 1110 (110), or equiv. Not open to students with 10 qtr cr hrs in 543 or English 587 or with 6 sem cr hrs in English 4587. Repeatable to a maximum of 6 cr hrs. Cross-listed in English 4587.			
<b>4804</b>	<b>Studies in Latino Literature and Culture</b>	<b>U</b>	<b>3</b>
Focused study of a topic in Latino/a literary and cultural studies. Prereq: English 1110 (110), or equiv. Not open to students with 10 qtr cr hrs in 544 or 588 or 6 sem cr hrs in English 4588. Repeatable to a maximum of 6 cr hrs. Cross-listed in English 4588.			
<b>4822</b>	<b>Native American Identity</b>	<b>U</b>	<b>3</b>
Historical and contemporary issues of American Indian identity, primarily in U.S.; focus on American Indian authors, artists, and scholars. Prereq: English 1110 (110) or equiv. Not open to students with credit for 542. GE cultures and ideas and diversity soc div in the US course.			
<b>4845</b>	<b>Gender, Sexuality, and Science</b>	<b>U</b>	<b>3</b>
Examination of relations between gender and science; topics include gendering of "science" and "nature," biological theories of sexual inequality, feminist critiques of science and technology. Prereq: One course in CompStd or WGSSt, or Grad standing, or permission of instructor. Not open to students with credit for 535 or WGSSt 4845 (535). Cross-listed with WGSSt.			
<b>4921</b>	<b>Intersections: Approaches to Race, Gender, Class, and Sexuality</b>	<b>U</b>	<b>3</b>
Examines intersections of race, gender, class, and sexuality in various sites within American culture (e.g., legal system, civil rights discourse, social justice movements). Prereq: One course in CompStd, WGSSt, or AfAmAST. Not open to students with credit for 545, AfAmAst 4921 (545), or WGSSt 4921 (545). Cross-listed in AfAmAST and WGSSt.			
<b>4990</b>	<b>Senior Seminar in Comparative Studies</b>	<b>U</b>	<b>3</b>
Writing seminar based on students' independent research. Prereq: 3990 (398), and 500 or a 4000-level course in CompStd, and Sr standing; or permission of instructor. Not open to students with credit for 598.			
<b>4998</b>	<b>Undergraduate Research in Comparative Studies</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research in variable topics; independent study. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research in Comparative Studies</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research in variable topics; independent study. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis</b>	<b>U</b>	<b>1 - 6</b>
Independent study for 4th-year students wishing to complete a senior thesis. Prereq: Sr standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			

<b>4999H</b>	<b>Honors Thesis</b>	<b>U</b>	<b>1 - 6</b>
Senior honors course leading to graduation with distinction and a thesis; independent study for the student with special aptitude. Honors thesis credits must be completed in addition to coursework requirements for all major and minor programs. Prereq: Honors standing, and a grade of A in at least half of the CompStd courses taken, and an average of B in the remainder, and Sr standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>5061</b>	<b>The Global Mediterranean</b>	<b>U G</b>	<b>3</b>
This course examines the governments, societies, and cultures of the littoral states (empires/nations) of the Mediterranean Sea. We will pay attention to the 'East/West' paradigm as a prism through which to examine past and present events. Prereq: Not open to students with credit for Italian 5061 or NELC 5061. Cross-listed in Italian and NELC.			
<b>5189S</b>	<b>Comparative Studies Field School</b>	<b>U G</b>	<b>3</b>
Introduction to ethnographic field methods (participant-observation, writing field notes, photography, interviewing), archiving, and public humanities. An introduction to fieldwork is followed by a field experience (where students will reside together in local housing) followed by accessioning, exhibition planning, and reflection. Maximum credit hours include those for English 5189S. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Cross-listed in English.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Special topics. Open to both undergraduates and graduate students. Repeatable to a maximum of 9 cr hrs.			
<b>5240</b>	<b>Race and Public Policy in the United States</b>	<b>U G</b>	<b>3</b>
This course explores Race and Public Policy in the United States from Reconstruction to the present. In particular, the class is designed to look at the long list of "hot topics" in the current policy landscape, including policing, housing, wealth gap, immigration, voting, political representation, and others. Prereq: Jr, Sr, or Grad standing; or permission of instructor. Not open to students with credit for AfAmASt 5240 or PubAfrs 5240. Cross-listed in AfAmASt and PubAfrs.			
<b>5668</b>	<b>Studies in Orality and Literacy</b>	<b>U G</b>	<b>3</b>
Examination of major theories of writing and of oral composition and transmission, in juxtaposition to case material deriving from a variety of Middle Eastern cultures. Prereq: Not open to students with credit for 648, or NELC 5568 (648). Cross-listed in NELC 5568.			
<b>5691</b>	<b>Topics in Comparative Studies</b>	<b>U G</b>	<b>3</b>
Critical study of selected themes and topics in a comparative and cross-cultural perspective; emphasis on issues of method, critical theory, representation, power, knowledge, and authority. Prereq: Not open to students with maximum qtr cr hrs for 651. Repeatable to a maximum of 12 cr hrs.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 30</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Prereq: Permission of department. Repeatable to a maximum of 30 cr hrs.			
<b>5957.01</b>	<b>Comparative Folklore</b>	<b>U G</b>	<b>3</b>
Comparative study of folklore. Topics vary, e.g., folklore and gender politics; theories of myth; folklore, memory, and history. Prereq: 2350, 2350H, English 2270, or 2270H (270). Not open to students with maximum qtr cr hrs for 677.01 and 677.02. Repeatable to a maximum of 6 cr hrs.			
<b>5957.02</b>	<b>Folklore in Circulation</b>	<b>U G</b>	<b>3</b>
Study of transmission of culture. Topics vary, e.g., tourists, travelers, tricksters; cultures of waste and recycling; orality and literacy. Prereq: 2350, 2350H, English 2270 (270), or 2270H. Not open to students with maximum qtr cr hrs for 677.03 and 677.04. Repeatable to a maximum of 6 cr hrs.			
<b>5980</b>	<b>Ancient and Modern Narrative: Cognition, Affect, Ethics, Belief</b>	<b>U G</b>	<b>3</b>
This course will juxtapose narratives from an ancient culture with narratives from a modern culture to explore the hypothesis that the power of narrative arises from its capacity to affect the lives of audiences by engaging their cognition, affect, ethics, and beliefs. Team-taught w/ faculty in English. Prereq: Not open to students with credit for English 5980. Cross-listed in English.			
<b>6100</b>	<b>Critical Foundations: Comparative Analysis</b>	<b>G</b>	<b>3</b>
This course prepares students to begin to approach their research interests and questions from a comparative perspective. The function of comparison is not to discover differences and similarities, but to understand more comprehensively the political, social, economic, and aesthetic dimensions of the various discourses and practices that constitute social and individual life.			
<b>6200</b>	<b>Critical Foundations: Interdisciplinarity &amp; Methods</b>	<b>G</b>	<b>3</b>
This course introduces interdisciplinarity as an approach to knowledge production that is problem and question driven and that therefore draws from varied approaches and methodologies. It considers a range of tools that scholars across humanities and social sciences disciplines use to critically analyze the pressing global issues.			

<b>6300</b>	<b>Critical Foundations: Cultural and Social Theory</b>	<b>G</b>	<b>3</b>
This course offers an introduction to comparative cultural studies and social theory. It introduces students to a wide range of well-known thinkers, critical movements, and widely cited texts. Attention will be paid to the ways in which these thinkers, movements, and texts are situated within disciplinary and inter-disciplinary contexts.			
<b>6390</b>	<b>Approaches to Comparative Cultural Studies I</b>	<b>G</b>	<b>3</b>
Introduces students to theoretical tools, methods of investigation, and key concepts integral to research in comparative studies. Prereq: Grad standing or permission of instructor. Not open to students with credit for 710.			
<b>6391</b>	<b>Approaches to Comparative Cultural Studies II</b>	<b>G</b>	<b>3</b>
Continuation of 6390. Discussion of theoretical tools, methods of investigation, and key concepts integral to research in comparative studies. Prereq: Grad standing or permission of instructor. Not open to students with credit for 711.			
<b>6400</b>	<b>Critical Foundations: The Humanities and Collaborative Practices</b>	<b>G</b>	<b>3</b>
The course introduces students to different forms of collaborative practices and participatory research in the humanities, recognizing the opportunities and possibilities it affords, as well as the challenges and limitations it entails. The course will also offer a space for critical reflection on how we engage other people's ideas, both in terms of our research and within the seminar community.			
<b>6425</b>	<b>Introduction to Latino Studies</b>	<b>G</b>	<b>4</b>
Introduces graduate students to the broad themes, concepts, and questions raised in the interdisciplinary field of Latina/Latino studies. Prereq: Grad standing, or permission of instructor and approved petition to the Graduate School. Not open to students with credit for 705, ArtsSci 705, or Spanish 6705 (705). Cross-listed in Spanish 6705.			
<b>6500</b>	<b>Teaching Seminar in Interdisciplinary Studies</b>	<b>G</b>	<b>3</b>
The seminar will also teach students to develop strategies to support students in questioning and challenging normative discourses while also developing teaching practices that problematize social reality and knowledge. The course topics focus on three areas: course content, methods of delivery, and issues related to in-class 'comportment.'			
<b>6750.01</b>	<b>Introduction to Graduate Study in Folklore I: The Philology of the Vernacular</b>	<b>G</b>	<b>3</b>
Introduction to the canonical folklore genres and the history of folklore as a discipline. Why and how should we study the vernacular? Prereq: Grad standing, or permission of instructor. Not open to students with credit for 770.01, English 6751.01 (770.01), or 6751.11. Cross-listed in English 6751.01.			
<b>6750.02</b>	<b>Introduction to Graduate Study in Folklore II: Fieldwork and Ethnography of Communication</b>	<b>G</b>	<b>3</b>
Introduction to fieldwork and ethnographic writing in the humanities - interviewing, participant observation, and research ethics. Focus on the ethnography of communication and community representations. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 770.02, 770.03, English 6751.02, 6751.22, 770.02, or 770.03. Cross-listed in English 6751.02.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Designed to give able students an opportunity to pursue special studies not otherwise offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7256</b>	<b>Complex Ethnography</b>	<b>G</b>	<b>3</b>
Critical analysis of relationships among the researcher, object of research, framing knowledge, and political context of ethnographic work. Prereq: Grad standing or permission of instructor. Not open to students with credit for 706.			
<b>7301</b>	<b>Theorizing Literature</b>	<b>G</b>	<b>3</b>
Provides an accelerated introduction to literary theory and criticism, surveying significant developments in modern and contemporary literary and cultural studies in global perspective. Prereq: Cross-listed in NELC.			
<b>7320</b>	<b>Theorizing Race and Ethnicity</b>	<b>G</b>	<b>3</b>
Advanced introduction to field of critical race theory; critical analysis of concepts of law in relation to race and ethnicity. Prereq: Grad standing or permission of instructor. Not open to students with credit for 752.			
<b>7340</b>	<b>Theorizing Science and Technology</b>	<b>G</b>	<b>3</b>
Introduction to comparative and cultural studies of science and technology. Prereq: Grad standing or permission of instructor. Not open to students with credit for 730.			
<b>7350.01</b>	<b>Theorizing Folklore I: Tradition and Transmission</b>	<b>G</b>	<b>3</b>
The transmission of cultural forms through time and space across social networks, with special attention to the dynamics of conservation and innovation, reflexivity and habit. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 792 or English 870. Cross-listed in English.			
<b>7350.02</b>	<b>Theorizing Folklore II: Ethnography of Performance</b>	<b>G</b>	<b>3</b>
Performance as a heightened mode of communication characteristic of vernacular cultural process, studied in the context of ongoing social interaction. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 792 or English 870. Cross-listed in English.			

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<b>7350.03</b>	<b>Theorizing Folklore III: Differentiation, Identification, and The Folk</b>	<b>G</b>	<b>3</b>
Cultural form as social marker. "Folklore" and other metacultural concepts in the history of modernity. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 792 or English 870. Cross-listed in English.			
<b>7360</b>	<b>Theorizing Culture</b>	<b>G</b>	<b>3</b>
The concept of culture as it has developed over time; emphasis on tension between descriptive and normative approaches. Prereq: Grad standing or permission of instructor. Not open to students with credit for 716.			
<b>7370</b>	<b>Theorizing Religion</b>	<b>G</b>	<b>3</b>
Relationships between religion and other domains in a cross-cultural, comparative framework with attention to theoretical models and particular texts and traditions. Prereq: Grad standing or permission of instructor. Not open to students with credit for 725.			
<b>7380</b>	<b>Theorizing America</b>	<b>G</b>	<b>3</b>
Interdisciplinary study of culture, identity, and representation in the U.S. Prereq: Grad standing or permission of instructor. Not open to students with credit for 715.			
<b>7888</b>	<b>Interdepartmental Studies in the Humanities</b>	<b>G</b>	<b>1 - 3</b>
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 10 completions. Cross-listed in German 7888, English 7888.01, and 7888.02.			
<b>7999</b>	<b>Research in Comparative Studies: Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research for Master's thesis. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.			
<b>8100</b>	<b>Interdisciplinary Learning Laboratory I</b>	<b>G</b>	<b>3</b>
The Comparative Studies Interdisciplinary Learning Laboratories are two-part courses that seek to give participants opportunities to engage in sustained interdisciplinary research, to workshop their research projects in conversation with one another, and to share their projects with broader publics. Expect to enroll in CompStd 8200 subsequent to this course. Repeatable to a maximum of 18 cr hrs.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Designed to give able students an opportunity to pursue special studies not otherwise offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8200</b>	<b>Interdisciplinary Learning Laboratory II</b>	<b>G</b>	<b>3</b>
The Comparative Studies Interdisciplinary Learning Laboratories are two-part year-long courses that seek to give participants opportunities to engage in sustained interdisciplinary research, to workshop their research projects in conversation with one another, and to share their projects with broader publics. Taken in conjunction with CompStd 8100. Prereq or concur: 8100. Repeatable to a maximum of 18 cr hrs.			
<b>8791</b>	<b>Seminar in Interdisciplinary Theory</b>	<b>G</b>	<b>3</b>
Discussion of interdisciplinary cultural theory. Repeatable to a maximum of 9 cr hrs.			
<b>8805</b>	<b>Seminar in Literature in Global Context</b>	<b>G</b>	<b>3</b>
Discussion of literary texts, cultural-political documents, and theoretical discourses in global contexts. Repeatable to a maximum of 15 cr hrs.			
<b>8842</b>	<b>Seminar in Science and Medicine</b>	<b>G</b>	<b>3</b>
Explores relationships between science, technology and the health sciences and medical practices; topic varies. Repeatable to a maximum of 15 cr hrs.			
<b>8843</b>	<b>Seminar in Technology and Culture</b>	<b>G</b>	<b>3</b>
Explores relationships between science and technology and other areas, including politics, gender and sexuality, popular culture; topic varies. Repeatable to a maximum of 15 cr hrs.			
<b>8858</b>	<b>Seminar in Folklore</b>	<b>G</b>	<b>3</b>
Advanced seminar on current or specialized topics in folklore studies. Folklore GIS course. Prereq: Grad standing, or permission of instructor. Not open to students with 9 sem cr hrs of English 8858.01 (can include equiv qtr cr hrs for 870), English 8858.02, or CompStd 8858. Repeatable to a maximum of 9 cr hrs. Cross-listed in English 8858.01.			
<b>8865</b>	<b>Seminar in Critical Trauma Theory</b>	<b>G</b>	<b>3</b>
Examines various topics in the growing field of critical trauma theory. Repeatable to a maximum of 9 cr hrs.			
<b>8866</b>	<b>Seminar in Culture and Capital</b>	<b>G</b>	<b>3</b>
Exploration of theoretical approaches to relations between cultural and economic production; examines major materialist theories, materialist feminism, and other forms of materialist critique. Repeatable to a maximum of 9 cr hrs.			

<b>8872</b>	<b>Seminar in Religious Studies</b>	<b>G</b>	<b>3</b>
Explores relationships between religious institutions and practices and other areas, including politics, gender and sexuality, technology, popular culture; topics vary. Repeatable to a maximum of 15 cr hrs.			
<b>8888</b>	<b>Interdepartmental Seminar in Critical Theory</b>	<b>G</b>	<b>3</b>
Interdisciplinary study of a movement or problem in critical theory. Repeatable to a maximum of 15 cr hrs. Cross-listed in English, French, German, Spanish, and WGSS.			
<b>8890</b>	<b>Colloquia, Workshops, and Departmental Seminars</b>	<b>G</b>	<b>1 - 3</b>
Departmental workshop, colloquium, or seminar. Topics vary. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8896</b>	<b>Seminar in East Asian Philosophy</b>	<b>G</b>	<b>3</b>
Seminar focusing on a particular thinker, school of philosophy, or set of texts from the East Asian philosophical tradition. Topics vary. Repeatable to a maximum of 9 cr hrs. Cross-listed in EALL 8896 and Philos 8102.			
<b>8990</b>	<b>Dissertation Writing Workshop</b>	<b>G</b>	<b>2</b>
Since the dissertation is often your first effort to construct a complex, original, and extended argument, interpretation and/or analysis, this writing workshop will assist you in developing concrete strategies for tackling this major task, hold you accountable for making progress on the dissertation, and contribute to the creation of an intellectual community among Comp Studies graduate students. This course is graded S/U.			
<b>8998</b>	<b>Research in Comparative Studies: Candidacy Examination</b>	<b>G</b>	<b>1 - 12</b>
Research in preparation for Ph.D. exams. Repeatable to a maximum of 27 cr hrs or 12 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Comparative Studies: Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation. Repeatable. This course is graded S/U.			

## Computer Science and Engineering

<b>1110</b>	<b>Introduction to Computing Technology</b>	<b>U</b>	<b>3</b>
A course of general interest giving experience with personal computer software, e.g., word processors and spreadsheets; provides fundamental computer literacy; neither teaches nor requires programming. Prereq: Not open to students with credit for 1111 or 1113.			
<b>1111</b>	<b>Introduction to Computer-Assisted Problem Solving</b>	<b>U</b>	<b>3</b>
Problem solving techniques using productivity software; spreadsheets, formulas, conditional logic; relational databases, relational algebra; word processing; data presentation; graphics. Prereq: Not open to students with credit for 1112 (105), 1113 (101), or 200. GE quant reason math and logical only course.			
<b>1112</b>	<b>Introduction to Computer-Assisted Problem Solving for Construction Systems Management</b>	<b>U</b>	<b>3</b>
Using productivity software, especially spreadsheets and databases, to solve problems for construction management; relative/absolute cell referencing, logic, functions; relational databases, querying, project integration. Prereq: Not open to students with credit for 1111 (101), 1113, 105, or 200.			
<b>1113</b>	<b>Spreadsheet Programming for Business</b>	<b>U</b>	<b>1</b>
Spreadsheet modeling/programming concepts and techniques to solve business related problems; efficient/effective data handling, computational analysis and decision support. Prereq: Math 1130 (130) or above. Not open to students with credit for 1111 (101), 1112 (105), 2111, or 200.			
<b>1114</b>	<b>Introduction to Databases Using MS Access</b>	<b>U</b>	<b>1½</b>
Database concepts and techniques for efficient/effective data handling, computational analysis and decision support. Prereq: Not open to students with credit for 1111, 1112, or 2111.			
<b>1211</b>	<b>Computational Thinking in Context: Images, Animation, and Games</b>	<b>U</b>	<b>3</b>
Introduction to computational thinking, focusing on problem solving and programming concepts and skills needed to manipulate digital images and to create interactive graphics, animations, and games; creativity and imagination encouraged. Prereq: Not open to students with credit for 203 or 204.			
<b>1213</b>	<b>Computational Thinking in Context: Game Development</b>	<b>U</b>	<b>4</b>
Introduction to computational thinking, focusing on problem solving and programming concepts and skills needed to develop video games.			
<b>1222</b>	<b>Introduction to Computer Programming in C++ for Engineers and Scientists</b>	<b>U</b>	<b>3</b>
Introduction to computer programming and to problem solving techniques using computer programs with applications in engineering and the physical sciences; algorithm development; programming lab experience. Concur: Math 1151, 1154, or 1161. Not open to students with credit for Engr 1281.01 or 1281.02. This course is available for EM credit.			

## Computer Science and Engineering 107

<b>1223</b>	<b>Introduction to Computer Programming in Java</b>	<b>U</b>	<b>3</b>
Introduction to computer programming and to problem solving techniques using computer programs; programming lab experience. Prereq: Math 1130, 1140, 1149, or 1150, or Math Placement Level L. This course is available for EM credit.			
<b>1224</b>	<b>Introduction to Computer Programming in Python</b>	<b>U</b>	<b>3</b>
Introduction to computer programming and to problem solving techniques using computer programs; programming lab experience. Prereq: Math 1130, 1140, 1149, or 1150, or Math Placement Level L.			
<b>2021</b>	<b>Introduction to Modeling and Simulation</b>	<b>U</b>	<b>3</b>
Concepts of modeling and simulation; develop MATLAB skills to explore modeling concepts; project: design, implementation, verification/validation of model; oral and written project report. Prereq: Math 1151 (152) or equivalent, and Physics 1250 (131). Not open to students with credit for 1221 or Engr 1221.			
<b>2111</b>	<b>Modeling and Problem Solving with Spreadsheets and Databases</b>	<b>U</b>	<b>3</b>
Spreadsheet and database modeling/programming concepts and techniques to solve business related problems; efficient/effective data handling, computational analysis and decision support. Additional topics: computer concepts, networking, project integration. Prereq: Math 1130 or above, or Math Placement Level L. Not open to students with credit for 1111 or 1112. This course is available for EM credit. GE quant reason math and logical any course.			
<b>2112</b>	<b>Modeling and Problem Solving with Spreadsheets and Databases for Engineers</b>	<b>U</b>	<b>3</b>
Spreadsheet and database modeling/programming concepts and techniques to solve business and engineering related problems; efficient/effective data handling, computational analysis and decision support. Prereq: 1222 (202), 1223 (201), Engr 1281.01H, or 1281.02H. Prereq or concur: Math 1151, 1161.01, or 1161.02. Not open to students with credit for 2111 (200), 1111 (101), 1112 (105), or 1113.			
<b>2122</b>	<b>Data Structures Using C++</b>	<b>U</b>	<b>3</b>
Introduction to programming in C++ and object-oriented programming; encapsulation using classes, inheritance, etc. Prereq: 1222 (202). Not open to students with credit for 230.			
<b>2123</b>	<b>Data Structures Using Java</b>	<b>U</b>	<b>3</b>
Subroutines and modular programming; searching; basic data structures; recursion; introduction to sequential files. Prereq: 1223.			
<b>2133</b>	<b>Business Programming with File Processing</b>	<b>U</b>	<b>3</b>
Business data processing principles and programming: sequential file processing algorithms, sorting, data validation; COBOL is taught. Prereq: 2123, and enrollment in Business Info Sys major or CIS minor.			
<b>2193</b>	<b>Individual Studies in Computer Science and Engineering</b>	<b>U</b>	<b>1 - 10</b>
Planning, conducting, and reporting a special study appropriate to the needs of the students. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Computer Science and Engineering</b>	<b>U</b>	<b>1 - 10</b>
Designed to give the student an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>2194H</b>	<b>Group Studies in Computer Science and Engineering</b>	<b>U</b>	<b>1 - 10</b>
Designed to give the student an opportunity to pursue special studies not otherwise offered. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>2221</b>	<b>Software I: Software Components</b>	<b>U</b>	<b>4</b>
Intellectual foundations of software engineering; design-by-contract principles; mathematical modeling of software functionality; component-based software from client perspective; layered data representation. Prereq: 1212, 1221, 1222, 1223, Engr 1221, 1281.01H, 1281.02H, or CSE Placement Level A. Prereq or concur: Math 1151, 1161.01, or 1161.02. Not open to students with credit for 5022. This course is available for EM credit.			
<b>2231</b>	<b>Software II: Software Development and Design</b>	<b>U</b>	<b>4</b>
Data representation using hashing, search trees, and linked data structures; algorithms for sorting; using trees for language processing; component interface design; best practices in Java. Prereq: 2221. Concur: 2321. Not open to students with credit for 2231.01.			
<b>2321</b>	<b>Foundations I: Discrete Structures</b>	<b>U</b>	<b>3</b>
Propositional and first-order logic; basic proof techniques; graphs, trees; analysis of algorithms; asymptotic analysis; recurrence relations. Prereq: 2122, 2123, or 2221; and Math 1151, or 1161. Concur (for students with credit for 2221): 2231.			

<b>2331</b>	<b>Foundations II: Data Structures and Algorithms</b>	<b>U</b>	<b>3</b>
Design/analysis of algorithms and data structures; divide-and-conquer; sorting and selection, search trees, hashing, graph algorithms, string matching; probabilistic analysis; randomized algorithms; NP-completeness. Prereq: 2231, 2321, and Stat 3460 or 3470, and enrollment in CSE, CIS, ECE, Data Analytics, or Math major, or CIS minor. Concur: Math 3345. Not open to students with credit for 5331.			
<b>2421</b>	<b>Systems I: Introduction to Low-Level Programming and Computer Organization</b>	<b>U</b>	<b>4</b>
Introduction to computer architecture at machine and assembly language level; pointers and addressing; C programming at machine level; computer organization. Prereq: 2122, 2123, or 2231; and 2321 or Math 2566; and enrollment in CSE, CIS, Data Analytics, Music (BS), Eng Physics, or Math major.			
<b>2431</b>	<b>Systems II: Introduction to Operating Systems</b>	<b>U</b>	<b>3</b>
Introduction to operating system concepts: process, CPU scheduling, memory management, file system and storage, and multi-threaded programming. Prereq: 2421, or 2451 and ECE 2560; and enrollment in CSE, CIS, Data Analytics, Engr Physics, or ECE major. Not open to students with credit for 5431.			
<b>2451</b>	<b>Advanced C Programming</b>	<b>U</b>	<b>2</b>
Advanced C features for students with significant programming experience in another language. Prereq: 2221 or 222. Concur: 2231 or 321. Not open to students with credit for 2421.			
<b>2501</b>	<b>Social, Ethical, and Professional Issues in Computing</b>	<b>U</b>	<b>1</b>
Social, ethical, and professional issues facing computing professionals; ethical principles; discussion of case studies. Prereq: 2122, 2123, or 2231; and Gen Ed Writing: Level 2; and enrollment in CSE or CIS major, or Information Security minor. Not open to students with credit for 5501.			
<b>3231</b>	<b>Software Engineering Techniques</b>	<b>U</b>	<b>3</b>
Software engineering issues, techniques, methodologies and technologies; software lifecycle activities: requirements analysis, architecture, design, testing, deployment, maintenance; project management; enterprise software systems; frameworks. Prereq: 3901 or 3902 or 3903. Not open to students with credit for 5231 (757).			
<b>3232</b>	<b>Software Requirements Analysis</b>	<b>U</b>	<b>3</b>
Information systems analysis; object-oriented analysis models and tools; use cases, system modeling using UML; requirements specification development; term project. Prereq: 3241, 3901, 3902, 3903, or 5241; and enrollment in CIS, CSE, ECE, or Business Info Sys major. Not open to students with credit for 5232.			
<b>3241</b>	<b>Introduction to Database Systems</b>	<b>U</b>	<b>3</b>
Database systems use, logical design, entity-relationship model, normalization, query languages and SQL, relational algebra and calculus, object relational databases, XML, active databases; database design project. Prereq: 2133 or 2231; and 2321 or Math 2366; and enrollment in CSE, CIS, ISE, Data Analytics, ECE, Engr Physics, or Business Info Sys major, or CIS minor. Not open to students with credit for 5241.			
<b>3244</b>	<b>Data Management in the Cloud</b>	<b>U</b>	<b>3</b>
Systematic organization of data on cloud computing architectures; basic indexing techniques, including B-tree and hash-based indexing; fundamentals of query optimization, including access path selection and cardinality estimation; full and partial replication; data partitioning and distributed task scheduling. Prereq: 3241 or 5241; and 2421 or 3430; and enrollment in CSE, CIS, or Data Analytics major.			
<b>3321</b>	<b>Automata and Formal Languages</b>	<b>U</b>	<b>3</b>
Machine-based and grammatical models of computation; finite automata and regular languages, pushdown automata and context-free languages, Turing machines; non-determinism; Church's Thesis. Prereq: 2231, 2421, 2331, and Math 3345; and enrollment in CSE, CIS, ECE, or Math major. Not open to students with credit for 5321.			
<b>3341</b>	<b>Principles of Programming Languages</b>	<b>U</b>	<b>3</b>
Formal languages and grammars; recursive descent parsing; data types, expressions, control structures, parameter passing; compilers and interpreters; memory management; functional programming principles. Prereq: 2231, 2331 (680), and 2421, and 3901 (560), 3902, or 3903. Not open to students with credit for 5341 (655).			
<b>3421</b>	<b>Introduction to Computer Architecture</b>	<b>U</b>	<b>3</b>
Organization of hardware and software in modern computer systems, including instruction set design, processor control, ALU design, pipelining, multicores and accelerators, and memory subsystem design. Prereq: 2231, and 2421 or ECE 2560, and 2000 or 2060; and enrollment in CSE, CIS, or ECE major. Not open to students with credit for 5421.			
<b>3430</b>	<b>Overview of Computer Systems For Non-Majors</b>	<b>U</b>	<b>4</b>
Introduction to computer architecture and organization at machine and assembly level; pointers and addressing using C programming; introduction to operating system concepts: process, memory management, file system and storage, and multi-threaded programming. Prereq: 2122, 2123, or 2231; and 2321; and enrollment in Data Analytics major or CIS minor. Not open to students with credit for 2421 or 2431. Not open to CSE/CIS majors.			

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**3461 Computer Networking and Internet Technologies** U 3

Computer networks, communication protocols, Internet TCP/IP and applications, wireless communications and network security.  
Prereq: 2421; or 3430; or 2451 and ECE 2560; and enrollment in CIS, CSE, ECE, Engr Physics, or Data Analytics major. Prereq or concur: 2431 or 3430. Not open to students with credit for 5461.

**3521 Survey of Artificial Intelligence I: Basic Techniques** U 3

Survey of basic concepts and techniques in artificial intelligence, including problem solving, knowledge representation, and machine learning.  
Prereq: 2331 or 5331, and enrollment in CSE, CIS, ECE, or Data Analytics major. Not open to students with credit for 5521.

**3541 Computer Game and Animation Techniques** U 3

Fundamental algorithms and mathematics in production of computer animation and video games, emphasizing control and rendering of animated characters.  
Prereq: 3901, 3902, or 3903; and enrollment in CSE, CIS, Music (BS), or ECE major. Not open to students with credit for 5541.

**3901 Project: Design, Development, and Documentation of Web Applications** U 4

Intensive group project involving design, development, and documentation of a web application; client-side and server-side scripting; communication skills emphasized; builds programming maturity.  
Prereq: 2231; and 2321; and 2421 or 3430, or 2451 and ECE 2560; and enrollment in CSE, CIS, ECE, or Data Analytics major.

**3902 Project: Design, Development, and Documentation of Interactive Systems** U 4

Intensive group project involving design, development, and documentation of an interactive software system, a 2D interactive game; communication skills emphasized; builds programming maturity.  
Prereq: 2231; and 2321; and 2421 or 3430, or 2451 and ECE 2560; and enrollment in CSE, CIS, ECE, Music (BS), or Data Analytics major.

**3903 Project: Design, Development, and Documentation of System Software** U 4

Intensive group project involving design, development, and documentation of system software including an assembler and a linking loader; communication skills emphasized; builds programming maturity.  
Prereq: 2231; and 2321; and 2421 or 3430, or 2451 and ECE 2560; and enrollment in CSE, CIS, ECE, or Data Analytics major.

**4191 Professional Practice in Industry** U 0

Preparation and submission of a comprehensive report based on actual employment experience in a co-op job in industry.  
Prereq: Permission of the CSE Advising Office. Repeatable to a maximum of 8 completions. This course is progress graded (S/U).

**4193 Individual Studies in Computer Science and Engineering** U 1 - 10

Designed to give the student an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.

**4194 Group Studies in Computer Science and Engineering** U 1 - 10

Designed to give the student an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

**4194H Group Studies in Computer Science and Engineering** U 1 - 10

Designed to give the student an opportunity to pursue special studies not otherwise offered.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

**4251 The UNIX Programming Environment** U 1

Introduction to the UNIX programming environment including: shell programming (csh); regular expressions; makefiles; grep, sed, and awk programming languages.  
Prereq: 2122, 2123, or 2231; and 2321; and enrollment in CSE, CIS, ECE, Engr Physics, or Data Analytics major, or CIS minor. This course is graded S/U.

**4252 Programming in C++** U 1

Syntax and pragmatics of C++ programming; C++ types, arrays, classes, pointers; objects and classes; compile-time vs. run-time picture; inheritance; template classes.  
Prereq: 2123 or 2231; and 2321; and enrollment in CSE, CIS, ECE, Engr Physics, or Data Analytics major, or CIS minor. Not open to students with credit for 2122. This course is graded S/U.

**4253 Programming in C#** U 1

C# programming for students well-versed in programming with another object-oriented language.  
Prereq: 2122, 2123, or 2231; and 2321; and enrollment in CSE, CIS, ECE, Engr Physics, or Data Analytics major, or CIS minor. This course is graded S/U.

**4254 Programming in Lisp** U 1

Lisp programming for students well-versed in programming with another language.  
Prereq: 2122, 2123, or 2231; and 2321; and enrollment in CSE, CIS, ECE, Engr Physics, or Data Analytics major, or CIS minor. This course is graded S/U.

**4256 Programming in Python** U 1

Python programming for students well-versed in programming with another imperative language.  
Prereq: 2122, 2123, or 2231; and 2321; and enrollment in CSE, CIS, ECE, Engr Physics, or Data Analytics major, or CIS minor. This course is graded S/U.

**4471 Information Security** U 3

Introduction to security of digital information; threats and attacks; regulations; risk management; attack detection and response; cryptography; forensics; technical training and certifications.  
Prereq: 2231 and 2321; and enrollment in CSE, CIS, ECE, or Data Analytics major, or Information Security or CIS minor.

**4998 Undergraduate Research in Computer Science and Engineering** U 1 - 10

Opportunity for undergraduate student to conduct research in Computer Science and Engineering.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.

**4998H Undergraduate Research in Computer Science and Engineering** U 1 - 10

Opportunity for undergraduate student to conduct research in Computer Science and Engineering.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.

**4999 Computer Science and Engineering Research for Thesis** U 1 - 10

Supervised research and project work arranged individually.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.

**4999H Computer Science and Engineering Research for Thesis** U 1 - 10

Supervised research and project work arranged individually for honors students.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.

**5022 Software I: Software Components** U G 3

Intellectual foundations of software engineering; design-by-contract principles; mathematical modeling of software functionality; component-based software from client perspective; layered data representation. Previous programming experience in any language required.  
Prereq: At least one term of Calculus. Not open to students with credit for 2221, 2231, 4221, 321, or 502. Not open to students enrolled in a CSE or CIS major.

**5023 Software II: Software Development and Design** U G 3

Data representation using hashing, search trees, and linked data structures; algorithms for sorting; using trees for language processing; component interface design; best practices in Java.  
Prereq: 2221 or 5022. Not open to students with credit for 2231, 2231.01, 321, or 421.

**5032 Foundations I: Discrete Structures** U G 2

Propositional and first-order logic; basic proof techniques; graphs, trees; analysis of algorithms; asymptotic analysis; recurrence relations.  
Prereq: 5022 or equiv. Not open to students with credit for 2321, 625, or 680.

**5042 Systems I: Introduction to Low-Level Programming and Computer Organization** U G 3

Introduction to computer architecture at machine and assembly language level; pointers and addressing; C programming at machine level; computer organization.  
Prereq: 2122, 2123, or 2231; and 2321 or Math 2566; or Grad standing. Not open to students with credit for 2421.

**5043 Overview of Computer Systems For Non-Majors** U G 3

Introduction to computer architecture and organization at machine and assembly level; pointers and addressing using C programming; introduction to operating system concepts: process, memory management, file system and storage, and multi-threaded programming.  
Prereq: 5022 or equiv, and 5032 or equiv. Not open to students with credit for 2421, 5042, 2431, 3430, 360, or 660. Not open to CSE/CIS majors.

**5052 Survey of Artificial Intelligence for Non-Majors** U G 3

Survey of the basic concepts and techniques in artificial intelligence, including problem solving, knowledge representation, and machine learning.  
Prereq: 1211, 1221, 1222, 1223, or 2221, or Grad standing. Not open to students with credit for 3521 (630), 4521, or 5521, or students enrolled in a CSE or CIS major.

**5194.01 Group Studies in Computer Science and Engineering** U G 1 - 10

Designed to give the student an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

**5231 Software Engineering Techniques** U G 2

Software engineering issues, techniques, methodologies and technologies; software lifecycle activities: requirements analysis, architecture, design, testing, deployment, maintenance; project management; enterprise software systems; frameworks.  
Prereq: 3901 or 3902 or 3903 (560). Not open to students with credit for 3231 (757).

<b>5232</b>	<b>Software Requirements Analysis</b>	<b>U G</b>	<b>2</b>
Information systems analysis; object-oriented analysis models and tools; use cases, system modeling using UML; requirements specification development; term project. Prereq: 3241 or 3901 or 3902 or 3903 (560) or 5241 (670). Not open to students with credit for 3232 (616).			
<b>5234</b>	<b>Distributed Enterprise Computing</b>	<b>U G</b>	<b>3</b>
Current application and middleware frameworks for distributed enterprise computing; XML; Enterprise Java; SOAP and REST web services; AJAX and JSON; enterprise service bus; Hadoop; mobile computing. Prereq: 2431 or 5431 (660). Not open to students with credit for 769.			
<b>5235</b>	<b>Applied Enterprise Architectures and Services</b>	<b>U G</b>	<b>3</b>
Modeling/analysis of complex enterprise architectures; enterprise patterns (workflow, broker, warehousing); methods for service performance (lean, ontologies, data mining, etc.); emerging topics in semantic cyber-infrastructure, social computation. Prereq: 5911 (758 and 762), 5912 (786), 5913 (682), 5914 (731), 5915 (772), or 778.			
<b>5236</b>	<b>Mobile Application Development</b>	<b>U G</b>	<b>3</b>
Mobile application development frameworks; Architecture, design and engineering issues, techniques, methodologies for mobile application development. Prereq: 3901 or 3902 or 3903 (560).			
<b>5239</b>	<b>Intermediate Studies in Software Engineering</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in software engineering. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5241</b>	<b>Introduction to Database Systems</b>	<b>U G</b>	<b>2</b>
Database systems use; logical design; entity-relationship model; normalization; query languages and SQL; relational algebra and calculus; object relational databases; XML; active databases; database design project. Prereq: 2133 or 2231 or 2233 (314) or 321, and 2321 or Math 2366 (366). Not open to students with credit for 3241 (670).			
<b>5242</b>	<b>Advanced Database Management Systems</b>	<b>U G</b>	<b>3</b>
Transaction management; query processing and optimization; organization of database systems, advanced indexing, multi-dimensional data, similarity-based analysis, performance evaluation, new database applications. Prereq: 3241 or 5241, and 2421 or 5042.			
<b>5243</b>	<b>Introduction to Data Mining</b>	<b>U G</b>	<b>3</b>
Knowledge discovery, data mining, data preprocessing, data transformations; clustering, classification, frequent pattern mining, anomaly detection, graph and network analysis; applications. Prereq: 3241 or 5241; and 2331, 5331, Stat 3301, or ISE 3200; and enrollment in CSE, CIS, ECE, Data Analytics, or ISE major.			
<b>5245</b>	<b>Introduction to Network Science</b>	<b>U G</b>	<b>3</b>
Introduction to Network Science; Global and Local Network Measures; PageRank; Community Discovery Algorithms; Network Models; Understanding the role of network analysis in Web and Social network applications. Prereq: 2331.			
<b>5249</b>	<b>Intermediate Studies in Databases</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in databases. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5321</b>	<b>Automata and Formal Languages</b>	<b>U G</b>	<b>2</b>
Machine-based and grammatical models of computation; finite automata and regular languages, pushdown automata and context-free languages, Turing machines; non-determinism; Church's Thesis; halting problem. Prereq: 2231 or 321, and 2421 or 360, and 2331 or Math 566. Not open to students with credit for 3321 (625).			
<b>5329</b>	<b>Intermediate Studies in Computation Theory</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in computation theory. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5331</b>	<b>Foundations II: Data Structures and Algorithms</b>	<b>U G</b>	<b>2</b>
Design/analysis of algorithms and data structures; divide-and-conquer; sorting and selection, search trees, hashing, graph algorithms, string matching; probabilistic analysis; randomized algorithms; NP-completeness. Prereq: 2231 or 321, and 2321 or Math 366, and 2566 (566), and Stat 3470 (427). Not open to students with credit for 2331 (680).			
<b>5339</b>	<b>Intermediate Studies in Algorithms</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in algorithms. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5341</b>	<b>Principles of Programming Languages</b>	<b>U G</b>	<b>2</b>
Formal languages and grammars; recursive descent parsing; data types, expressions, control structures, parameter passing; compilers and interpreters; memory management; functional programming principles. Prereq: 2231, 2331 (680) and 2421, and 3901 (560), 3902, or 3903. Not open to students with credit for 3341 (655).			

<b>5343</b>	<b>Compiler Design and Implementation</b>	<b>U G</b>	<b>3</b>
Lexical and syntax analysis using compiler generation tools; type checking; intermediate code; control-flow analysis; dataflow analysis; code optimizations; code generation; compiler project. Prereq: 3901 (560), 3902, or 3903, and 3341 (655). Not open to students with credit for 756.			
<b>5349</b>	<b>Intermediate Studies in Programming Languages</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in programming languages. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5351</b>	<b>Introduction to Cryptography</b>	<b>U G</b>	<b>3</b>
Foundations of cryptography; mathematical formulations/proofs of security goals; theory and practical constructions of encryption schemes, MACs, digital signatures; zero-knowledge proof systems; cryptographic protocols. Prereq: 2331 (680), 5331, Math 4573 (573), or 4580 (580), and Stat 3460 (427) or 3470. Not open to students with credit for 723 or 794Q.			
<b>5359</b>	<b>Intermediate Studies in Cryptography</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in cryptography. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5421</b>	<b>Introduction to Computer Architecture</b>	<b>U G</b>	<b>2</b>
Organization of hardware and software in modern computer systems, including instruction set design, processor control, ALU design, pipelining, multicores and accelerators, and memory subsystem design. Prereq: 2231 or 321, and 2421 (360) or ECE 2560 (265), and 2000 or 261. Not open to students with credit for 3421 (675.01 or 675.02).			
<b>5429</b>	<b>Intermediate Studies in Computer Architecture</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in computer architecture. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5431</b>	<b>Systems II: Introduction to Operating Systems</b>	<b>U G</b>	<b>2</b>
Introduction to operating system concepts: process, CPU scheduling, memory management, file system and storage, and multi-threaded programming. Prereq: 5042 or equiv. Not open to students with credit for 2431 or 660.			
<b>5432</b>	<b>Mobile Handset Systems and Networking</b>	<b>U G</b>	<b>3</b>
Mobile handset architecture: processors, memory, I/O devices, sensors, virtual machine and power management; different ranges of wireless communication technologies; TCP/IP over wireless; mobile social networking. Prereq: 2421, 3430, or 2451 and ECE 2560; or Grad standing.			
<b>5433</b>	<b>Operating Systems Laboratory</b>	<b>U G</b>	<b>3</b>
Introduction to the internals of operating systems; designing and implementing components within commercial operating systems: system calls, CPU scheduling, context switching, process management, memory management, file systems. Prereq: 2431 or 5431. Not open to students with credit for 662.			
<b>5434</b>	<b>Comparative Operating Systems</b>	<b>U G</b>	<b>3</b>
A careful examination of a number of representative computer operating systems. Prereq: 2431 (660) or 5431. Not open to students with credit for 741.			
<b>5439</b>	<b>Intermediate Studies in Operating Systems</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in operating systems. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5441</b>	<b>Introduction to Parallel Computing</b>	<b>U G</b>	<b>3</b>
Parallel programming models; sequential and parallel performance issues; high-performance computer architecture; design, analysis, implementation and performance evaluation of parallel algorithms. Prereq: 2231, 2321, and 2421; or 2231, 2321, and 3430; or 2231, 2321, 2451, and ECE 2560; or Grad standing.			
<b>5449</b>	<b>Intermediate Studies in Parallel Computing</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in parallel computing. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5461</b>	<b>Computer Networking and Internet Technologies</b>	<b>U G</b>	<b>2</b>
Computer networks, communication protocols, Internet TCP/IP and applications, wireless communications and network security. Prereq: 2451, and 2421 or ECE 2560 (265). Concur: 2431. Not open to students with credit for 3461 (677).			
<b>5462</b>	<b>Network Programming</b>	<b>U G</b>	<b>3</b>
IP-based socket programming in C/C++, TinyOS programming in NesC. Prereq: 3461, 5461, or ECE 3561.			
<b>5463</b>	<b>Introduction to Wireless Networking</b>	<b>U G</b>	<b>3</b>
Fundamental concepts in cellular design, Wireless-LANs, MANETs, and sensor networks will be explored. Specific topics will include propagation, fading, cellular-design, power-management, routing, scheduling, and control. Prereq: 3461, 5461, or ECE 3561; or Grad standing in Engineering or Math and Physical Sciences. Cross-listed in ECE 5101.			
<b>5469</b>	<b>Intermediate Studies in Computer Networking</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in computer networking. Repeatable to a maximum of 12 cr hrs or 6 completions.			

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<b>5471</b>	<b>Introduction to Cybersecurity</b>	<b>U G</b>	<b>3</b>
Introduction to cybersecurity. Technical fundamentals of data, software, component, network, and system security. Cybersecurity from an organizational and societal view point, including human factors. Prereq: Jr, Sr, or Grad standing, or permission of instructor. Not open to students with credit for ECE 5561. Cross-listed in ECE 5561.			
<b>5472</b>	<b>Information Security Projects</b>	<b>U G</b>	<b>3</b>
Team-based projects: solve information security problems (mobile/static host/network hardening, intrusion detection and vulnerability scanning, forensics); results communicated through report writing and presentation. Prereq: 3901, 3902, or 3903, and 3461, 5461, or 4471. Not open to students with credit for 652.			
<b>5473</b>	<b>Network Security</b>	<b>U G</b>	<b>3</b>
Security threats and services, elements of cryptography, protocols for security services, network and internet security, advanced security issues and technologies. Prereq: 3461 (677) or 5461. Not open to students with credit for 651.			
<b>5477.01</b>	<b>Offensive Security</b>	<b>U G</b>	<b>3</b>
This course will give students an overview of existing offensive computing techniques, which include well known attacks that break confidentiality, integrity and availability of computing resources. Attacks targeting on human weaknesses without taking special care to security will also be discussed. Prereq: 2431, 5431, or Grad standing. Not open to students with credit for ECE 5567.01. Cross-listed in ECE 5567.01.			
<b>5477.02</b>	<b>Reverse Engineering and Malware Analysis</b>	<b>U G</b>	<b>3</b>
This course will give students an overview of cutting edge reverse engineering techniques as well as software security and defense practices. Programming experience in C required. Prereq: 2431, 5431, or Grad standing. Prereq or concur: 5471 or ECE 5561. Not open to students with credit for ECE 5567.02. Cross-listed in ECE 5567.02.			
<b>5479</b>	<b>Intermediate Studies in Computer Security</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in computer security. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5501</b>	<b>Social, Ethical, and Professional Issues in Computing</b>	<b>U G</b>	<b>1</b>
Social, ethical, and professional issues facing computing professionals; ethical principles; discussion of case studies. Prereq: 1222 or 1223 or 2231 or 214 or 222 or 230, and 2321 or Math 366, and Gen Ed Writing Level 2. Not open to students with credit for 2501 (601).			
<b>5521</b>	<b>Survey of Artificial Intelligence I: Basic Techniques</b>	<b>U G</b>	<b>2</b>
Survey of the basic concepts and techniques in artificial intelligence, including problem solving, knowledge representation, and machine learning. Prereq: 2331 or 5331, or Grad standing. Not open to students with credit for 3521.			
<b>5522</b>	<b>Survey of Artificial Intelligence II: Advanced Techniques</b>	<b>U G</b>	<b>3</b>
Survey of advanced concepts, techniques, and applications of artificial intelligence, including knowledge representation, learning, natural language understanding, and vision. Prereq: 3521 or 5521, and enrollment in CSE, CIS, ECE, or Data Analytics major; or Grad standing.			
<b>5523</b>	<b>Machine Learning and Statistical Pattern Recognition</b>	<b>U G</b>	<b>3</b>
Introduction to basic concepts of machine learning and statistical pattern recognition; techniques for classification, clustering and data representation and their theoretical analysis. Prereq: 3521, 5521, or 5243; and 5522, Stat 3460, or 3470; and Math 2568, 2174, 4568, or 5520H; or Grad standing.			
<b>5524</b>	<b>Computer Vision for Human-Computer Interaction</b>	<b>U G</b>	<b>3</b>
Computer vision algorithms for use in human-computer interactive systems; image formation, image features, segmentation, shape analysis, object tracking, motion calculation, and applications. Prereq: 2331, or Sr or Grad standing. Not open to students with credit for 634.			
<b>5525</b>	<b>Foundations of Speech and Language Processing</b>	<b>U G</b>	<b>3</b>
Fundamentals of natural language processing, automatic speech recognition and speech synthesis; lab projects concentrating on building systems to process written and/or spoken language. Prereq: 3521 or 5521, and 5522, Stat 3460, or 3470. Not open to students with credit for 733.			
<b>5526</b>	<b>Introduction to Neural Networks</b>	<b>U G</b>	<b>3</b>
Survey of fundamental methods and techniques of neural networks; single- and multi-layer perceptrons; radial-basis function networks; support vector machines; recurrent networks; supervised and unsupervised learning. Prereq: 3521 or 5521. Not open to students with credit for 779.			
<b>5539</b>	<b>Intermediate Studies in Artificial Intelligence</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in artificial intelligence. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5541</b>	<b>Computer Game and Animation Techniques</b>	<b>U G</b>	<b>2</b>
Fundamental algorithms and mathematics in the production of computer animation and video games, emphasizing the control and rendering of animated characters. Prereq: 3901 or 3902 or 3903 (560). Not open to students with credit for 3541 (683).			

<b>5542</b>	<b>Real-Time Rendering</b>	<b>U G</b>	<b>3</b>
Comprehensive list of topics in real-time rendering using OpenGL and GLSL, including coordinate systems, transformations, viewing, illumination, texture mapping, and shader-based algorithms. Prereq: 3901 (560) or 3902 or 3903, and Math 2568 (568) or 571. Not open to students with credit for 781.			
<b>5543</b>	<b>Geometric Modeling</b>	<b>U G</b>	<b>3</b>
Common algorithmic and mathematical techniques for modeling geometric objects in computer graphics and CAD applications; sample based modeling, mesh generation, and hierarchical representations. Prereq: Math 2568 (568) or 571. Not open to students with credit for 784.			
<b>5544</b>	<b>Introduction to Data Visualization</b>	<b>U G</b>	<b>3</b>
Principles and methods for visualizing data from measurements and calculations in physical and life sciences, and transactional and social disciplines; information visualization; scientific visualization. Prereq: 5361, Stat 3301, 3541, or 5541. Not open to students with credit for 694L.			
<b>5545</b>	<b>Advanced Computer Graphics</b>	<b>U G</b>	<b>3</b>
Advanced topics in computer graphics; image synthesis, lighting and rendering, sampling and material properties, volume rendering. Prereq: 3541 or 5541 or 581. Not open to students with credit for 782.			
<b>5546</b>	<b>Virtual Reality</b>	<b>U G</b>	<b>3</b>
Principles and methods for the design, development, and evaluation of three-dimensional interfaces in virtual environments and their applications in data science, medicine, and engineering. Prereq: 3541, 5541, 5542, or 5544, or permission of instructor.			
<b>5559</b>	<b>Intermediate Studies in Computer Graphics</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in computer graphics. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>5889</b>	<b>Intermediate Studies in Multidisciplinary Computing</b>	<b>U G</b>	<b>2 - 3</b>
Intermediate-level topics in multidisciplinary computing techniques Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>5891</b>	<b>Proseminar in Cognitive Science</b>	<b>U G</b>	<b>3</b>
Provides an in-depth examination of cognitive science from an interdisciplinary perspective. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. Cross-listed in Ling, Philos, Psych, and SphHrng.			
<b>5911</b>	<b>Capstone Design: Software Applications</b>	<b>U G</b>	<b>4</b>
Capstone design project: application of software engineering techniques, methodologies and technologies in software lifecycle activities using enterprise software frameworks; teamwork, written and oral communication. Prereq: 3231 or 5231, and 2501 or Philos 1338, and CSE 3901 or 3902 or 3903, and second writing course; or Grad standing.			
<b>5912</b>	<b>Capstone Design: Game Design and Development</b>	<b>U G</b>	<b>4</b>
Capstone design project: conceptual and technical design and implementation of interactive game, integrating custom code and toolkits; teamwork, written and oral communication skills. Prereq: 3541 or 5541, and 2501 or Philos 1338, and CSE 3901 or 3902 or 3903, and second writing course; or Grad standing.			
<b>5913</b>	<b>Capstone Design: Computer Animation</b>	<b>U G</b>	<b>4</b>
Capstone design project: conceptual and technical design and implementation of computer animation incorporating animation elements; teamwork, written and oral communication skills. Prereq: 3541 or 5541, and 2501 or Philos 1338, and CSE 3901 or 3902 or 3903, and second writing course; or Grad standing.			
<b>5914</b>	<b>Capstone Design: Knowledge-Based Systems</b>	<b>U G</b>	<b>4</b>
Capstone design project: conceptual and technical design; theory and practice of knowledge-based systems; teamwork, written and oral communication skills. Prereq: 3521 or 5521, and 2501 or Philos 1338, and CSE 3901 or 3902 or 3903, and second writing course; or Grad standing.			
<b>5915</b>	<b>Capstone Design: Information Systems</b>	<b>U G</b>	<b>4</b>
Capstone design project; information system principles: database design methods and tools, indexing, searching, application development, testing, evaluation; teamwork, written and oral communication skills. Prereq: 3241 or 5241, and 2501 or Philos 1338, and CSE 3901 or 3902 or 3903, and second writing course; or Grad standing.			
<b>6193</b>	<b>Individual Studies in Computer Science and Engineering</b>	<b>G</b>	<b>1 - 10</b>
Designed to give the student an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies in Computer Science and Engineering</b>	<b>G</b>	<b>1 - 10</b>
Designed to give the student an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>6239</b>	<b>Advanced Studies in Software Engineering</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in software engineering. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			



## Computer Science and Engineering 111

<b>6249</b>	<b>Advanced Studies in Databases</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in databases. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6321</b>	<b>Computability and Complexity</b>	<b>G</b>	<b>3</b>
Turing machines, decidability, recursive enumerability; many-to-one and polynomial-time reductions; NP-completeness, Cook-Levin Theorem; Recursion Theorem. Prereq: 3321 (625) or 5321. Not open to students with credit for 725.			
<b>6331</b>	<b>Algorithms</b>	<b>G</b>	<b>3</b>
Algorithm design paradigms; mathematical analysis of algorithms. Prereq: 2331 (680) or 5331. Not open to students with credit for 780.			
<b>6341</b>	<b>Foundations of Programming Languages</b>	<b>G</b>	<b>3</b>
Conceptual foundations of programming languages: attribute grammars; types; functional languages; language semantics; abstract interpretation. Prereq: 3341 (655) or 5341. Not open to students with credit for 755.			
<b>6349</b>	<b>Advanced Studies in Programming Languages</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in programming languages. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6421</b>	<b>Computer Architecture</b>	<b>G</b>	<b>3</b>
Principles and tradeoffs behind the design of modern computer architectures, including instruction-level parallelism, memory system design, advanced cache architectures, cache coherence, multiprocessors, energy-efficient and embedded architectures. Prereq: 3431 (660) or 5431, and 3421 (675), 5421, or ECE 5362 (662). Not open to students with credit for 775.			
<b>6422</b>	<b>Advanced Computer Architecture</b>	<b>G</b>	<b>3</b>
Fundamental design issues in parallel architectures, design of scalable shared memory and distributed memory systems, interconnection networks (on-chip and off-chip), multi-core architectures, accelerators, embedded systems, and exascale systems. Prereq: 6421 (775) and 6441 (721). Not open to students with credit for 875.			
<b>6429</b>	<b>Advanced Studies in Computer Architecture</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in computer architecture. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6431</b>	<b>Advanced Operating Systems</b>	<b>G</b>	<b>3</b>
Advanced topics in operating systems and concurrency; introduction to distributed systems. Prereq: 2431 (660) or 5431. Not open to students with credit for 760.			
<b>6441</b>	<b>Parallel Computing</b>	<b>G</b>	<b>3</b>
Principles and practice of parallel computing; design, implementation, and performance evaluation of parallel programs for shared-memory, distributed-memory and heterogeneous parallel systems. Prereq: 5441 (621). Not open to students with credit for 721.			
<b>6449</b>	<b>Advanced Studies in Parallel Computing</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in parallel computing. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6461</b>	<b>Computer Communication Networks</b>	<b>G</b>	<b>3</b>
Foundational understanding of network analysis, error-control, routing, congestion-control, multi-access, and their examples in the context of the existing communication networks. A previous course in statistics is recommended for students taking this course. Prereq: Grad standing in Engr. Not open to students with credit for ECE 6101. Cross-listed in ECE 6101.			
<b>6469</b>	<b>Advanced Studies in Computer Networking</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in computer networking. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6479</b>	<b>Advanced Studies in Computer Security</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in computer security. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6521</b>	<b>Artificial Intelligence</b>	<b>G</b>	<b>3</b>
Survey of advanced concepts, techniques, and applications of artificial intelligence, including knowledge representation, learning, natural language understanding, and vision. Prereq: 4256 or equiv., Math 4568 or equiv., and Stat 3470 or equiv. Not open to students with credit for 5521 or 5522.			
<b>6539</b>	<b>Advanced Studies in Artificial Intelligence</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in artificial intelligence. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6559</b>	<b>Advanced Studies in Computer Graphics</b>	<b>G</b>	<b>1 - 3</b>
Advanced-level topics in computer graphics. Repeatable to a maximum of 24 or hrs or 8 completions. This course is graded S/U.			
<b>6998</b>	<b>MS Research in Computer Science and Engineering</b>	<b>G</b>	<b>½ - 10</b>
MS research in Computer Science and Engineering. Repeatable to a maximum of 10 completions. This course is graded S/U.			

<b>6999</b>	<b>MS Thesis Research in Computer Science and Engineering</b>	<b>G</b>	<b>1 - 10</b>
MS research in Computer Science and Engineering, leading to a thesis. Repeatable to a maximum of 10 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Computer Science and Engineering</b>	<b>G</b>	<b>1 - 10</b>
Designed to give the student an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 completions.			
<b>8998</b>	<b>PhD Research in Computer Science and Engineering</b>	<b>G</b>	<b>½ - 10</b>
PhD research in Computer Science and Engineering. Repeatable to a maximum of 10 completions. This course is graded S/U.			
<b>8999</b>	<b>PhD Dissertation Research in Computer Science and Engineering</b>	<b>G</b>	<b>1 - 10</b>
PhD research in Computer Science and Engineering, leading to a dissertation. Repeatable to a maximum of 10 completions. This course is graded S/U.			

## Construction Systems Management

<b>1100</b>	<b>Exploring Construction Systems Management</b>	<b>U</b>	<b>½</b>
Basic understanding of the global trends within construction systems management, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Introductory individual study of problems and topics not included in regular Construction Systems Management courses. Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Introductory group studies of selected topics in Construction Systems Management Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.			
<b>2205</b>	<b>Introduction to Construction Systems Management</b>	<b>U</b>	<b>3</b>
Overview of commercial, industrial, institutional, transportation and residential sectors of the construction industry and the role of the construction manager. Introduction to planning, scheduling, estimating, safety and ethics in construction. Prereq or concur: Math 1148, 1149, 1150, or 1151. Not open to students with credit for 1205 or 3450. This course is available for EM credit.			
<b>2210</b>	<b>Graphic Presentation</b>	<b>U</b>	<b>2</b>
Presentation of three-dimensional objects by precise graphics: orthographic, sectional, pictorial, and introduction to computer graphics.			
<b>2220</b>	<b>Information Technology for Construction</b>	<b>U</b>	<b>3</b>
An introduction to information technology used in the construction process for collaboration, visualization, information modeling, and simulation. The application of current collaborative software packages for the construction process is explored. Spreadsheets are used to illustrate data collection and information modeling. Emerging trends in software and hardware are discussed. Prereq: Math 1148, 1149, 1150, or 1151.			
<b>2240</b>	<b>Construction Materials and Methods I</b>	<b>U</b>	<b>3</b>
A study of the principles and practices in basic metal fabrication using the current joining, metallurgical and welding processes required in the construction industry. Prereq or concur: Math 1130, 1148, 1149, 1150 or 1151. Not open to students with credit for AgSysMt 2240. This course is available for EM credit.			
<b>2241</b>	<b>Construction Materials and Methods II</b>	<b>U</b>	<b>3</b>
Material selection and construction methods for residential and commercial construction with an emphasis on wood, masonry, and concrete. Prereq or concur: 2205. Not open to students with credit for AgSysMt 2241. This course is available for EM credit.			
<b>2305</b>	<b>Professional Development I</b>	<b>U</b>	<b>2</b>
Business communications and professional development in construction systems management including informative and persuasive writing, academic planning, project management, research techniques, teaming, report writing and presentations. Prereq: English 1110. Not open to students with credit for AgSysMt 2305. This course is available for EM credit.			
<b>2310</b>	<b>Electrical and Lighting Systems for Buildings</b>	<b>U</b>	<b>3</b>
Concepts of electricity and illumination applied to the design and installation of electrical and lighting systems in buildings including safety, code requirements, installation methods, electrical schematics, and construction blueprints. Prereq: Math 1148, 1149, 1150, or 1151. Prereq or concur: Physics 1200 or 1250. This course is available for EM credit.			
<b>2345</b>	<b>Mechanical Systems for Buildings</b>	<b>U</b>	<b>3</b>
Fundamentals of HVAC, plumbing, fire protection and noise and vibration control and their impact on building design and construction. Prereq: Math 1148, 1149, 1150, or 1151. Prereq or concur: Physics 1200 or 1250. This course is available for EM credit.			

## 112 Construction Systems Management

**2440 Construction Surveying and Site Development** U 4

Principles of soil mechanics, erosion control, layout, and surveying as applied to site development for residential and commercial construction.  
Prereq: 2210 or Engr 1182.01 or 1182.02 or 1182.03, and CSE 1112 or Engr 1181.01 or 1181.02 or HCS 2401. Prereq or concur: ENR 3000. This course is available for EM credit.

**2600 Construction Safety and Health** U 3

Construction safety and health practices, strategies and methods for the development and management of safety and health programs in the construction industry.  
Prereq: 2205. This course is available for EM credit.

**3191 Internship in Construction Systems Management** U 2

A pre-approved internship of planned and supervised work experiences which provide professional and technical growth in the construction industry.  
Prereq: ConSysM 2305 (ConSysMt 305), and 8 sem cr hrs in ConSysM or 11 qtr cr hrs in ConSysMt courses, or some combination thereof, and permission of internship coordinator. Not open to students with credit for ConSysMt 489 or AgSysMt 3191 (AgSysMgt 489).

**3450 Estimating for Construction** U 4

Reading and interpretation of construction drawings and specifications for construction projects. Estimating the material requirements and costs of building construction projects using commercially available estimating tools.  
Prereq: 2240, 2241, 2310, 2345, and Physics 1200 or 1250. Prereq or concur: ConSysM 2440.

**3451 Scheduling Construction Projects** U 4

Planning, scheduling and tracking of construction project elements including management of time, resources, cost and safety.  
Prereq: 2440 and 3450.

**3545 Structures for Construction Mgrs I** U 3

Principles of statics, material properties, structural analysis and design theory useful in understanding the design, and managing the construction, of steel and wood structures. Overview of structural loads on buildings and bridges, types of structural systems, and accurate construction drawing interpretation.  
Prereq: 2240, 2241, and Physics 1200 or 1250. Prereq or concur: ConSysM 2440.

**3546 Structures for Construction Mgrs II** U 3

A continuation of CSM 3545 to include steel, concrete and masonry structures and design methodologies, including foundation design and building systems integration of structural components. Further review of construction drawings, submittals and actual project observations will be utilized as opportunities are available throughout the course.  
Prereq: 3545.

**4193 Individual Studies** U 1 - 3

Intermediate individual study of problems and topics not included in regular Construction Systems Management courses.  
Prereq: GPA 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4194 Group Studies** U 1 - 5

Intermediate group studies of selected topics in Construction Systems Management.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

**4605 Professional Development II** U 1

Development and pursuing career plans; strategies and programs for employment in the construction industry, professional development, personal growth, and relationships.  
Prereq: 2305 (ConSysMt 305), 3451 (ConSysMt 541), and AgrComm 3130 (390) or Comm 2110 (321), and any second writing course numbered 2367 (367). Not open to students with credit for ConSysMt 605 or AgSysMt 4605 (AgSysMgt 605).

**4641 Construction Project Management** U 2

The management of standard commercial/residential construction projects, including planning, scheduling, materials management, resource procurement, codes and standards, construction funding, personnel management and labor unions.  
Prereq: 3451.

**4642 Construction Control - Contracts and Documents** U 3

Documents used in the construction industry will be discussed and applied; including types of contracts, bidding and negotiating, administration and quality control of construction contracts.  
Prereq: 3451.

**4660 Heavy Construction Management** U 3

Methods, materials, equipment, and planning of heavy construction projects. Economics of equipment acquisition and operation. Equipment selection, performance characteristics, and production rates.  
Prereq or concur: 3451.

**4900 Construction Management Capstone** U 3

Skills in estimating, scheduling, blueprint reading, teamwork, oral written communication, management principles, and contracts/documents used to develop solutions to industry provided construction related problems.  
Prereq or concur: 3546, 4641, 4642, and 4660.

**4998 Undergraduate Research** U 1 - 3

Supervised undergraduate research on various topics.  
Prereq: CPHR 2.5 or above, and permission of the instructor. Repeatable to a maximum of 6 cr hrs or 4 completions. This course is graded S/U.

**4999 Research with Distinction** U 1 - 3

Conducting and reporting research with Distinction. Students are expected to present at the CFAES Undergraduate Research and the Denman University Undergraduate Research forums.  
Prereq: GPA 3.0 or above, GPA 3.0 or above in ConSysM, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

**4999H Honors Research with Distinction** U 1 - 3

Conducting and reporting honors research with distinction. Students are expected to present at the CFAES Undergraduate Research and the Denman University Undergraduate Research forums.  
Prereq: Honors standing, and FAES 4590.01H (590H), and CPHR 3.4 or above, and GPA 3.4 or above in ConSysM, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

**5670 Green Building and Sustainable Construction** U G 3

Introduction to LEED rating systems, major components of sustainable building design and construction as well as other environmental and economic issues of sustainable built environments.  
Prereq: Jr, Sr, or Grad standing. Not open to students with credit for ConSysMt 670.

**5680 Construction Renovation and Demolition** U G 3

The practices, procedures and management strategies employed by construction managers in renovating and demolishing buildings and other structures.  
Prereq or concur: ConSysM 4642 (ConSysMt 642), or permission of instructor.

**6193 Individual Studies** G 1 - 3

Advanced individual study of problems and topics not included in regular Construction Systems Management courses.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**6194 Group Studies** G 1 - 5

Advanced group studies of selected topics in Construction Systems Management.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

## Consumer Sciences

**2910 Consumer Problems and Perspectives** U 3

Study of common imperfections in the market which manifest themselves in safety, fairness, quality, information and education concerns for consumers.  
Prereq: Not open to students with credit for CSCFMFNS 243. GE soc sci orgs and politics course.

**2990 Professional Development** U 1

The professional: Overview of the internship and job search process, networking, involvement in professional organizations and continued development.  
Prereq: Soph standing or above, and enrollment in a ConSci major (CSCFFS, CSFRST, CSHspMg). Not open to students with credit for 595. This course is graded S/U.

**3191 Internship** U 3

Supervised practical experience at a department approved internship site related to the student's selected major. Includes an investigation and analysis of assigned problems and documentation of experience.  
Prereq: 2990 (595), 2.0 CPHR or above, and Jr standing; and CS major: Consumer and Family Financial Services, Fashion and Retail Studies, Hospitality Management. Not open to students with credit for 589.02, CSFSnRTS 289, 589, CSHspMg 570, or 571. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

**3930 Consumer Decision-Making I** U 3

Contemporary consumer behavior theories and decision-making processes with implications for consumers, marketers, policy makers and managers in a global economy.  
Prereq: 2910 and Econ 2001.01. Not open to students with credit for 543.

**3940 Consumer Information: Methods of Data Analysis** U 3

Application of marketing research and statistical analysis using spreadsheet applications to examine consumers, consumption patterns, workforce behavior, and retailer/marketplace responses.  
Prereq: Stat 1350, 1430, or 1450, and CSE 1111 or 2111. Not open to students with credit for 340.

**4990 Practicum in Consumer Sciences** U 1 - 3

Practical applications of fashion and retail studies, hospitality management, or consumer and family financial services; students work individually with a faculty member on a project.  
Prereq: Permission of instructor. Not open to students with credit for CSFSnRTS 590 or CSTxtCl 590. Repeatable to a maximum of 8 cr hrs or 8 completions. This course is graded S/U.

**4998 Undergraduate Research in Consumer Sciences** U 1 - 3

Supervised undergraduate research in various phases of consumer sciences under the guidance of a faculty member.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

<b>4998H</b>	<b>Undergraduate Honors Research in Consumer Sciences</b>	<b>U</b>	<b>1 - 3</b>
Supervised undergraduate honors research in various phases of consumer sciences under the guidance of a faculty member. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies in Consumer Sciences</b>	<b>U G</b>	<b>1 - 4</b>
Problems in various phases of consumer sciences chosen for individual study under the guidance of a faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 8 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in Consumer Sciences</b>	<b>U G</b>	<b>1 - 4</b>
Problems in various phases of consumer sciences chosen for group study under the guidance of a faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>5333</b>	<b>Workplace Satisfaction, Happiness, and Well-being of Service Employees</b>	<b>U G</b>	<b>2</b>
This course discusses and applies the key concepts and strategies - intellectual and practical - to achieve a greater sense of workplace satisfaction, happiness and well-being among service employees.			
<b>5798</b>	<b>Study Tour</b>	<b>U G</b>	<b>1 - 12</b>
Specific content, location, term(s) of offering and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 2 completions.			
<b>6000</b>	<b>Introduction to Research in Consumer Sciences</b>	<b>G</b>	<b>3</b>
Research literature in consumer sciences; development of the principles of scholarly research. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 700 or CSCFmFnS 738 or CSFsnRIS 777.01.			
<b>6010</b>	<b>Individual and Family Behavior in the Market Place</b>	<b>G</b>	<b>3</b>
Study of consumer behavior in purchase of goods and services, with emphasis on applications to effective marketing management decisions from the consumer perspective. Prereq: Grad standing, or permission of instructor.			
<b>6020</b>	<b>Theories and Models in Consumer Sciences</b>	<b>G</b>	<b>3</b>
Survey of theories and models that serve as the foundation for research in Consumer Sciences; including theories from economics, psychology, and sociology. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 702.			
<b>7193</b>	<b>Individual Studies in Consumer Sciences</b>	<b>G</b>	<b>1 - 4</b>
Problems in various phases of consumer sciences chosen for individual study under the guidance of a faculty member. Prereq: 6000 (700), and Grad standing; or permission of instructor. Repeatable to a maximum of 16 cr hrs or 16 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Consumer Sciences</b>	<b>G</b>	<b>1 - 4</b>
Problems in various phases of consumer sciences chosen for group study under the guidance of a faculty member. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 16 completions.			
<b>7230</b>	<b>Measurement and Analysis of the Economic Status of Consumer Units</b>	<b>G</b>	<b>3</b>
Measurement and analysis of the economic status of consumer units including key concepts, determinants, policy implications, and implications for research. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 739.			
<b>7240</b>	<b>Theories and Models in Consumer Sciences II</b>	<b>G</b>	<b>3</b>
Aspects of consumers' family life are analyzed from the perspective of economic theories. Emphasis is placed on implications of the theories for design and interpretation of empirical studies. Prereq: Intermediate Microeconomics. Not open to students with credit for 740.			
<b>7900</b>	<b>Graduate Seminar in Consumer Sciences</b>	<b>G</b>	<b>1</b>
Scholarly presentations of current research by students, faculty and invited speakers to stimulate critical thinking and discussion of implications for consumers. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 800. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			
<b>7991</b>	<b>Research Practicum in Consumer Sciences</b>	<b>G</b>	<b>1 - 4</b>
Supervised participation in empirical research inclusive of research design selection, and/or data collection, and/or data analysis, and/or manuscript preparation. Prereq: 6000 (700), and Grad standing; or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions.			
<b>7992</b>	<b>Teaching Practicum in Consumer Sciences</b>	<b>G</b>	<b>1 - 4</b>
Supervised participation in college teaching inclusive of pedagogy selection, and/or development of teaching techniques, and/or development of course content, and/or development of assessment pieces, and/or classroom instruction. Prereq: 6000 (700), and grad standing; or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions.			

<b>7999</b>	<b>Research for Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research for Masters Thesis. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies in Consumer Sciences</b>	<b>G</b>	<b>1 - 4</b>
Problems in various phases of consumer sciences chosen for individual study under the guidance of a faculty member. Prereq: 6000 (700), and grad standing; or permission of instructor. Repeatable to a maximum of 16 cr hrs or 16 completions. This course is graded S/U.			
<b>8250</b>	<b>Normative Approaches to Consumer Sciences</b>	<b>G</b>	<b>3</b>
Focuses on derivation of normative guidelines for household financial decisions, but normative guidelines related to other aspects of consumer sciences will also be covered. Prereq: Intermediate microeconomics, introductory statistics, and introductory differential calculus. Not open to students with credit for 741 or CsFmScM 741.			
<b>8260</b>	<b>Behavioral Approaches to Consumer Sciences</b>	<b>G</b>	<b>3</b>
Economic behaviors are analyzed from psychological perspectives to understand factors that motivate consumption, saving, and related economic behaviors. Prereq: Grad standing, and permission of instructor.			
<b>8270</b>	<b>Managing Consumer Risk</b>	<b>G</b>	<b>3</b>
An examination of challenges involved in managing consumer risk. Topics include the economics of risk, methods of risk management, and quantitative risk analysis. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 872.			
<b>8891</b>	<b>Special Topic Seminar: Family Finance</b>	<b>G</b>	<b>3</b>
Survey of literature on specific family finance topics with emphasis on identifying research problems, assessing significance, reviewing literature, conducting research, and preparing professional presentations. Prereq: 6000 (700), and Grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8999</b>	<b>Research for Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			

### Consumer Sciences: Consumer&Family Financial Servs

<b>2260</b>	<b>Family Financial Management</b>	<b>U</b>	<b>3</b>
The management of family financial resources; topics include financial planning and budgeting, insurance, credit, and savings and investments. Prereq: Not open to students with credit for CSCFmFnS 260.			
<b>2990</b>	<b>Professional Development</b>	<b>U</b>	<b>1</b>
The professional: Overview of the internship and job search process, networking, involvement in professional organizations and continued development. Prereq: Soph standing or above, and enrollment in CSCFFS major. Not open to students with credit for 595. This course is graded S/U.			
<b>3191</b>	<b>Internship</b>	<b>U</b>	<b>3</b>
Supervised practical experience at a department approved internship site related to the student's selected major. Includes an investigation and analysis of assigned problems and documentation of experience. Prereq: 2990 (595), 2.0 CPHR or above, and Jr standing; and CSCFFS major. Not open to students with credit for 589.02. This course is graded S/U.			
<b>3260</b>	<b>Fundamentals of Financial Planning</b>	<b>U</b>	<b>3</b>
This course provides an introduction to personal financial planning from the perspective of the financial planning professional. It is a required course in the seven-course Certified Financial Planner (CFP) sequence that qualifies students to sit for the CFP Exam after obtaining their Bachelors degree. Prereq: 2260 or 9 credit hours of BusFin courses at the 3000-level or higher.			
<b>3270</b>	<b>Families in Business</b>	<b>U</b>	<b>3</b>
Students explore family business topics such as family dynamics, conflict, gender, ethnicity; and relative to the business formation: growth, strategic management, professionalization and succession. Prereq: Soph standing or above. Not open to students with credit for CSFmFnS 567.			
<b>4130</b>	<b>Consumer Decision Making II</b>	<b>U</b>	<b>3</b>
Theory and practice of rational consumer decision making under uncertainty with application to decision-making of oneself and for clients. Prereq: CONSCI 3930, and Econ 2001.01; and Stat 1350, or 1430, or 1450.			
<b>4150</b>	<b>Quantitative Methods in Consumer Sciences</b>	<b>U</b>	<b>3</b>
Application of data analysis to facilitate decision making with respect to consumer sciences. Prereq: ConSci 3940 (340), and Stat 1430 (133), 1350 (135), or 1450 (145), and CSE 1111 (101), 2111 (200), or 1223 (201). Not open to students with credit for CSCFmFnS 644.			

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<b>4260</b>	<b>Family Tax Planning</b>	<b>U</b>	<b>3</b>
Analyze and evaluate financial decisions by families at various points in family life cycle, apply economic principles and understanding of basic tax policy to family financial decisions. Prereq or concur: 3260.			
<b>4270</b>	<b>Retirement Planning and Employee Benefits</b>	<b>U</b>	<b>2</b>
Evaluation of retirement plans and employee benefits with consideration of the interwoven factors of Social Security, pension, private savings, and health insurance. Prereq or concur: 3260.			
<b>4280</b>	<b>Estate Planning for Individuals and Families</b>	<b>U</b>	<b>2</b>
Key topics in planning for transfer of family estate, focusing on strategies that conserve family wealth while being consistent with family financial goals. Prereq or concur: 3260.			
<b>5130</b>	<b>Solutions to Consumer Problems</b>	<b>U G</b>	<b>3</b>
Consumer problems are defined and characterized using an economics approach. Private and public solutions to consumer problems are then examined and evaluated. Prereq: ConSci 2910 and Econ 2001.01. Not open to students with credit for CSCFmFnS 443 or CSFmRsM 443.			
<b>5140</b>	<b>Topics in Consumer Sciences</b>	<b>U G</b>	<b>3</b>
Timely topics in consumer sciences are examined in depth. Prereq: Econ 2001.01 and Stat 1350, 1430, or 1450, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5150</b>	<b>FINRA Securities Industry Essentials Exam Preparation</b>	<b>U G</b>	<b>1</b>
This course prepares students for the FINRA Security Industry Essentials (SIE) Exam. Prereq or concur: BusFin 3222 or 4221. This course is graded S/U.			
<b>5250</b>	<b>Retirement Planning and Employee Benefits</b>	<b>U G</b>	<b>3</b>
This course covers advanced concepts in retirement planning, procedures and issues, with particular attention to designing retirement strategies to meet diverse client needs. Students will read journal articles covering the latest developments in planning for retirement and maintaining household well-being during retirement. Special attention will be given to qualified plans, tax-advantaged plans. Prereq or concur: 3260. Not open to students with credit for 4270.			
<b>5260</b>	<b>Family Financial Management Applications</b>	<b>U G</b>	<b>4</b>
Family financial management concepts are applied to evaluate financial goals and prepare a comprehensive financial plan for a household. Prereq: B- or above in 3260, and 4260; and BusFin 3120 or 3220. Prereq or concur: 4270 or 5250, 4280, BusFin 3300, and 3222 or 4221.			

### Consumer Sciences: Fashion and Retail Studies

<b>2100</b>	<b>Profit-Centered Merchandising and Hospitality</b>	<b>U</b>	<b>3</b>
An examination and application of managerial and financial accounting principles for the hospitality and fashion industry operations will be the focus. Students will apply the corresponding lectures to practical assignments to form a foundation of understanding concepts, procedures, and ultimately the analysis of various documents and data. Cross-listed in CSHspMg.			
<b>2300</b>	<b>Branding in Fashion, Hospitality and Sport Industries</b>	<b>U</b>	<b>3</b>
Examine branding as a business strategy in fashion, hospitality, sport and special events industries, including luxury, mass market, and boutique fashion, hotel and restaurant brands. Cross-listed in CSHspMg.			
<b>2370</b>	<b>Aesthetics of Fashion &amp; Retail</b>	<b>U</b>	<b>3</b>
The perception and presentation of self and its surrounding environment through use of aesthetics with consideration of foundations of design, physical characteristics, environment, personal expression, and context.			
<b>2371</b>	<b>Textiles</b>	<b>U</b>	<b>3</b>
Fiber, yarn, and fabric characteristics, textile coloration and finishes; textile selection for specific end uses; laundering and care; new textile products and industry trends. Prereq: Not open to students with credit for CSFsnRtS 371.			
<b>2372</b>	<b>Appearance, Dress, and Cultural Diversity</b>	<b>U</b>	<b>3</b>
A cross-cultural study of the diversity and meaning of appearance and dress as manifestations of individual and group behavior, social organizations, and cultural norms. Prereq: Not open to students with credit for CSFsnRtS 372. GE soc sci indivs and groups course.			
<b>2373</b>	<b>Business of Fashion &amp; Retailing</b>	<b>U</b>	<b>3</b>
Survey of fashion industry supply chain, business structure, design, manufacture, sourcing, distribution, and retail functions along with industry terminology, current topic analysis, and career options.			
<b>2374</b>	<b>Twentieth Century Fashion and Beyond</b>	<b>U</b>	<b>3</b>
Relationship between culture, society and fashion in the 20th century, the influence of historic dress on contemporary fashion, and industry developments leading to mass fashion. Prereq: English 1110. Not open to students with credit for CSFsnRtS 674. GE historical study course.			

<b>2990</b>	<b>Professional Development</b>	<b>U</b>	<b>3</b>
Preparation for internship experience in the fashion and retail industry by providing skills for success on the job and providing job seekers the tools applicable to an individual who is transitioning from the classroom to the work environment. This course is a prerequisite for CSFRSt 3191. Prereq: Soph standing or above, and enrollment in CSFRSt major.			
<b>3191</b>	<b>Internship</b>	<b>U</b>	<b>3</b>
Supervised practical experience at a department approved internship site related to the student's selected major. Includes an investigation and analysis of assigned problems and documentation of experience. Prereq: 2.0 CPHR or above, and Jr or Sr standing, and CSFRSt major. Prereq or concur: 2990 (595) or ConSci 2990. Not open to students with credit for 589.02. This course is graded S/U.			
<b>3330</b>	<b>Corporate Social Responsibility, Sustainability &amp; Entrepreneurship in Fashion &amp; Hospitality Indus</b>	<b>U</b>	<b>2</b>
Examination of corporate socially responsible and sustainable decision-making and regulatory processes used in advertising and promoting fashion retail and hospitality products and services. Prereq: Jr or Sr standing, or enrolled in HRL certificate program. Cross-listed in CSHspMg.			
<b>3470</b>	<b>Apparel Product Design and Branding</b>	<b>U</b>	<b>5</b>
Study of apparel design using a variety of hand and computer media: apparel product development. Prereq: C- or higher in 2372 (CSFsnRtS 372) and 2370 (270). Not open to students with credit for CSFsnRtS 370 and 670.			
<b>3471</b>	<b>Apparel Manufacturing Decisions</b>	<b>U</b>	<b>3</b>
View of the fashion supply chain that examines the life of a garment from farm to textile, garment to shelf. Investigate parameters of textile apparel quality, standards and evaluation, and assurance of quality throughout the factory garment construction phases. Learn about retailers' involvement throughout the process and logistical decision making needed to avoid quality issues. Recommended prereq: Chem 1110 (102). Prereq: C- or higher in 2373 (CSFsnRtS 275) and 2371 (371). Not open to students with credit for CSFsnRtS 571.			
<b>3474</b>	<b>Fashion Forecasting</b>	<b>U</b>	<b>3</b>
Analysis and application of trend forecasting practices in all aspects of the fashion industry. Prereq: C- or higher in 2370 (CSFsnRtS 270), and 2373 (275). Not open to students with credit for CSFsnRtS 200 or 374.			
<b>3910</b>	<b>Consumer Service and Satisfaction</b>	<b>U</b>	<b>3</b>
Provides students with an intellectual and hands-on understanding of the key consumer service management and consumer satisfaction theories and practices that are relevant in service sectors. Cross-listed in CSHspMg.			
<b>3950</b>	<b>Use of Social Media and IT in Fashion, Hospitality, and Sport Industries</b>	<b>U</b>	<b>2</b>
An application and discussion of social media and information technology strategies in fashion, sport, and hospitality industries. Prereq: Jr or Sr standing, and a major, pre-major, or minor in CSFRSt, CSHspMg, or KnSISM. Not open to students with credit for CSHspMg 650. Cross-listed in CSHspMg.			
<b>4570</b>	<b>Apparel Product Development and Technical Packages</b>	<b>U</b>	<b>3</b>
Study of computer-aided design software programs, and creative and technical apparel brand development. Recommended prereq: 3471 and 3474. Prereq: A grade of C- or above in 3470.			
<b>4575</b>	<b>Retail Environments</b>	<b>U</b>	<b>3</b>
Analysis of the influence of store environment characteristics on consumer behavior in various retail formats. Prereq: 2370 (CSFsnRtS 270) with C- or higher. Not open to students with credit for CSFscRtS 525.			
<b>4576</b>	<b>Global Sourcing and Trade in Textile Products</b>	<b>U</b>	<b>3</b>
International factors affecting the textiles and textile products industries and their impact on the economy and consumers. Prereq: 2373 (CSFsnRtS 275) with C- or higher. Prereq or concur: 3471 (571) with C- or higher. Not open to students with credit for CSFsnRtS 576.			
<b>4577</b>	<b>Fashion &amp; Retail Promotion</b>	<b>U</b>	<b>3</b>
Contemporary models, concepts and practice of image management, integrating marketing communications, media, and promotions from fashion industry perspectives. Prereq: 3474 (CSFsnRtS 374) with C- or higher, and BusML 3150 (450). Not open to students with credit for CSFsnRtS 577.			
<b>4583</b>	<b>International Retailing</b>	<b>U</b>	<b>3</b>
Study of retailers using expansion outside domestic market as strategy; reasons and process of internationalization; social, legal and economic factors influencing internationalization. Prereq: 2373, AcctMIS 2000, CSE 1111, Stat 1350 or 1450, and Jr standing.			

<b>4585</b>	<b>Merchandise Buying and Management</b>	<b>U</b>	<b>3</b>
Retail buyer's role in merchandise management: decision making, planning, buying, pricing, and preparing merchandise for sale. Analysis and synthesis of merchandising management practices and problems. Prereq: A grade of C- or above in 2373, Math 1130, AcctMIS 2000, CSE 1111, and Jr standing; or permission of instructor.			
<b>4680</b>	<b>Strategic Management in Fashion &amp; Hospitality Industries</b>	<b>U</b>	<b>2</b>
Discussion, development and application of strategic management in fashion and hospitality industries. Prereq: Sr standing, or enrolled in HRL certificate program. Cross-listed in CSHspMg.			
<b>5555</b>	<b>Management Consulting for Hospitality and Fashion Retail Operations</b>	<b>U G</b>	<b>3</b>
A conceptual foundation, discussion, and application of management consulting in the hospitality and retail industries. Prereq: Sr or Grad standing, or permission of instructor. Cross-listed in CSHspMg.			
<b>5780</b>	<b>Hospitality and Fashion Retail Leadership</b>	<b>U G</b>	<b>3</b>
Advanced hospitality and fashion retail professional course incorporating all principles of hospitality and fashion retail leadership in the various sectors and unique applications of knowledge learned. Prereq: Sr or Grad standing, or permission of instructor. Cross-listed in CSHspMg.			
<b>7478</b>	<b>Textiles: A Global and Cultural History</b>	<b>G</b>	<b>3</b>
Focuses on social, cultural, political, and technological influences, etc. on developments in historic textiles from the ancient world to modern times. Prereq: Grad standing. Not open to students with credit for CSFsnRts 878.			
<b>7574</b>	<b>Aesthetics, Appearance Management, and Self-Presentation</b>	<b>G</b>	<b>3</b>
Understanding aesthetics of dress as a medium of visual communication, with analysis of appearance management strategies employed in the social presentation of self. Prereq: ConSci 6000, or Grad standing, or permission of instructor.			
<b>7575</b>	<b>Psycho-social and Cultural Aspects of Dress</b>	<b>G</b>	<b>3</b>
In-depth study of research and social science theories as applied to appearance and dress as manifestations of individual and group consumer behavior. Prereq: ConSci 6000 (700), or Grad standing, or permission of instructor.			

### Consumer Sciences: Hospitality Management

<b>2100</b>	<b>Profit-Centered Merchandising and Hospitality</b>	<b>U</b>	<b>3</b>
An examination and application of managerial and financial accounting principles for the hospitality and fashion industry operations will be the focus. Students will apply the corresponding lectures to practical assignments to form a foundation of understanding concepts, procedures, and ultimately the analysis of various documents and data. Cross-listed in CSFRSt.			
<b>2200</b>	<b>Introduction to Healthcare Environmental and Hospitality Services</b>	<b>U</b>	<b>3</b>
An application and discussion of healthcare business and analysis of critical healthcare areas in relation to hospitality business.			
<b>2300</b>	<b>Branding in Fashion, Hospitality, and Sport Industries</b>	<b>U</b>	<b>3</b>
Examine branding as a business strategy in fashion, hospitality, sport and special events industries, including luxury, mass market, and boutique fashion, hotel and restaurant brands. Cross-listed in CsFRSt.			
<b>2600</b>	<b>Introduction to Hospitality Management</b>	<b>U</b>	<b>2</b>
Overview of the hospitality-tourism industry. Introduction to and career exploration of various segments of the hospitality-tourism field.			
<b>2700</b>	<b>Principles of Food Production Management</b>	<b>U</b>	<b>3</b>
Application of scientific food preparation and management principles to quantify food production in a commercial establishment. Prereq: 2600 or 1600 (230), or enrollment in Culinary Science major. Concur: 2710. Not open to students with credit for 350.01 or 350.02.			
<b>2710</b>	<b>Principles of Food Production Management Laboratory</b>	<b>U</b>	<b>1</b>
Applying scientific food preparation principles to quantify food production in a laboratory setting. Prereq: 2600 or 1600 (230), or enrollment in Culinary Science major. Concur: 2700 (350.01). Not open to students with credit for 350.01 or 350.02.			
<b>2800</b>	<b>Hotel Management</b>	<b>U</b>	<b>3</b>
An examination of the lodging firm as an operating entity, including structure, management strategies, functional departments, related financial reports and revenue management. Prereq or concur: 2600 (1600 (230)). Not open to students with credit for 560.			
<b>2810</b>	<b>Hotel Management Practicum</b>	<b>U</b>	<b>1</b>
Provide exposure to the lodging/hotel sector via experiences in Front of the House and Heart of the House in a real operating environment. Prereq or concur: 2600 (1600 (230)) and 2800 (4800). Not open to students with credit for 552.			

<b>2990</b>	<b>Professional Development</b>	<b>U</b>	<b>1</b>
The professional: overview of the internship and job search process, networking, involvement in professional development organizations and continued development. Prereq: Soph standing or above, and enrollment in CSHSPMG major. Not open to students with credit for 595. This course is graded S/U.			
<b>3191</b>	<b>Internship</b>	<b>U</b>	<b>3</b>
Supervised practical experience at a department approved internship site related to the student's selected major. Includes an investigation and analysis of assigned problems and documentation of experience. Prereq: 2990 (595), 2.0 CPHR or above, and Jr standing; and CSHSPMG major. Not open to students with credit for 589.02. This course is graded S/U.			
<b>3191.02</b>	<b>Healthcare Environmental Services Internship</b>	<b>U</b>	<b>3</b>
Supervised and practical experience at a department approved internship site related to environmental services in healthcare. Includes investigation and analysis of assigned problems and documentation of experience. Prereq or concur: 2200 and 3200. This course is graded S/U.			
<b>3200</b>	<b>Infection Prevention in Healthcare and Hospitality</b>	<b>U</b>	<b>3</b>
An application and discussion of introductory Microbiology, Epidemiology, Infection Prevention and Sanitation in healthcare and hospitality facilities.			
<b>3330</b>	<b>Corporate Social Responsibility, Sustainability &amp; Entrepreneurship in Fashion &amp; Hospitality Indus</b>	<b>U</b>	<b>2</b>
Examination of corporate socially responsible and sustainable decision-making and regulatory processes used in advertising and promoting fashion retail and hospitality products and services. Prereq: Jr or Sr standing, or enrolled in HRL certificate program. Cross-listed in CSFRSt.			
<b>3700</b>	<b>Controlling Food, Beverage, and Labor Costs</b>	<b>U</b>	<b>3</b>
Course will demonstrate effective and efficient controls of prime costs in a foodservice operation without sacrificing quality and good customer service. Prereq: 2600 (1600), and Hospitality Management major; or Hospitality Management premajor; or a Hospitality Management minor; or major in Human Nutrition: Dietetics, Culinary Science, or Professional Golf Management. Not open to students with credit for 370.			
<b>3720</b>	<b>Food Service Management</b>	<b>U</b>	<b>3</b>
Identification of the crucial elements involved in the successful operation of a foodservice enterprise and demonstrate their inter-relationships. Special emphasis will be on customer service and employee development. Prereq or concur: 2600 (1600), or enrollment in Human Nutrition: Dietetics major. Not open to students with credit for 551.			
<b>3730</b>	<b>Food Service Management Practicum</b>	<b>U</b>	<b>1</b>
Application of customer service and restaurant management responsibilities in a real operating foodservice environment. Prereq or concur: 2600 and 3720, or enrollment in Human Nutrition: Dietetics major. Not open to students with credit for 551.			
<b>3910</b>	<b>Consumer Service and Satisfaction</b>	<b>U</b>	<b>3</b>
Provides students with an intellectual and hands-on understanding of the key consumer service management and consumer satisfaction theories and practices that are relevant in service sectors. Cross-listed in CSFRSt.			
<b>3950</b>	<b>Use of Social Media and IT in Fashion, Hospitality, and Sport Industries</b>	<b>U</b>	<b>2</b>
An application and discussion of social media and information technology strategies in fashion, sport, and hospitality industries. Prereq: Jr or Sr standing, and a major, pre-major, or minor in CSFRSt, CSHspMg, or KNSISM. Not open to students with credit for 650. Cross-listed in CSFRSt.			
<b>4200</b>	<b>Managing the Customer Experience in Healthcare and Hospitality Services</b>	<b>U</b>	<b>3</b>
An application and discussion of hospitality principles and customer experience management in the healthcare industry.			
<b>4600</b>	<b>Special Events Planning and Management</b>	<b>U</b>	<b>3</b>
Course will examine techniques and procedures required for producing successful events of all types including effective procurement, organization, and implementation of all event aspects. Prereq: 2600.			
<b>4610</b>	<b>Beverage Management</b>	<b>U</b>	<b>2</b>
A discussion of the varieties, merchandising and management control of alcoholic and non-alcoholic beverages served in the hospitality industry. Prereq: 2600, or enrollment in Culinary Science major.			
<b>4620</b>	<b>Tourism &amp; Culture</b>	<b>U</b>	<b>3</b>
An overview of the tourism industry including travel motivation and the impacts, both positive and negative, of social, environmental, and economic influences.			
<b>4650</b>	<b>Human Resources in the Hospitality Industry</b>	<b>U</b>	<b>3</b>
Advanced management skills in specific application to the many facets of the Hospitality Industry with a focus on Hospitality Organizational structure and behavior and human resource management. Prereq: 3720 (551) and 2800 (4800 or 560). Not open to students with credit for 650.			

## 116 Consumer Sciences: Hospitality Management

**4680 Strategic Management in Fashion & Hospitality Industries** U 2

Discussion, development and application of strategic management in fashion and hospitality industries.

Prereq: Sr standing, or enrolled in HRL certificate program. Cross-listed in CSFRSt.

**4798 Tourism & Culture - Study Abroad - Bali** U 3

An overview of the tourism industry including travel motivation and the impacts, both positive and negative, of social, environmental, and economic influences.

**5555 Management Consulting for Hospitality and Fashion Retail Operations** U G 3

A conceptual foundation, discussion, and application of management consulting in the hospitality and retail industries.

Prereq: Sr or Grad standing, or permission of instructor. Cross-listed in CSFRSt.

**5640 Marketing in Hospitality Enterprises** U G 3

Designed to provide students with an intellectual and hands-on understanding of the key hospitality marketing and hospitality entrepreneurship.

Prereq: Jr, Sr, or Grad standing.

**5780 Hospitality and Fashion Retail Leadership** U G 3

Advanced hospitality and fashion retail professional course incorporating all principles of hospitality and fashion retail leadership in the various sectors and unique applications of knowledge learned.

Prereq: Sr or Grad standing, or permission of instructor. Cross-listed in CSFRSt.

**5820 Revenue Management in the Hospitality Industry** U G 3

An examination of the hotel revenue management practices including: pricing, occupancy management, cost-profit-volume analysis and forecasting.

Prereq: 2800.

**8630 Services in the Hospitality and Retail Industries** G 3

Provides an extensive overview of research on services focused on the hospitality and retail industries. Emphasis builds on theories associated with service, quality, customer satisfaction, and customer loyalty.

Prereq: Grad standing, or permission of instructor.

**8640 Managing Hospitality and Retail Operations** G 3

Provides an extensive overview of research focused on the hospitality and retail industries. Emphasis builds on theories associated with hospitality/retail operations.

Prereq: Grad standing, or permission of instructor.

### Crop and Soil Technology

**1201T Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation** U ½

Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.

**2189T Practicum in Crop and Soil Technologies** U 1

Supervised experiences in field, laboratory, and/or industry work. A grade of C or higher required to meet graduation requirements.

Repeatable to a maximum of 3 or hrs.

**2191T Crop and Soil Internship** U 3

Supervised employed work experience on a crop production farm or related industries. A grade of C or better is required to meet graduation requirements.

Prereq: Soph standing, and CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 6 or hrs.

**2193T Individual Studies** U 1 - 3

Designed to give an individual student an opportunity to pursue special studies not offered in other courses.

Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.

**2194T Group Studies** U 1 - 3

Designed to give groups of students an opportunity to pursue special studies not offered in other courses.

Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

**2200T Introduction to Sustainable Agriculture** U 2

A holistic study of farming systems and an examination of sustainable management practices for healthy soils, crops, and livestock.

This course is available for EM credit.

**2201T Sustainable Cropping Systems and Marketing** U 3

A study of cropping systems and marketing strategies related to sustainable agricultural enterprises.

Prereq: 2200T (220T). This course is available for EM credit.

**2210T Sustainable Agriculture Methods** U 1

This course will give students experience with the practical on-farm skills, management practices and entrepreneurship expertise needed in various sustainable agriculture enterprises. Students will work as a team to select, plan and execute a hands-on or field-based project that integrates the environmental, social and economic aspects of sustainable agriculture.

Prereq or concur: 2200T. Repeatable to a maximum of 2 or hrs. This course is available for EM credit.

**2228T Manure Management** U 3

A study of the biological, chemical, and physical components of animal manures; methods for safe handling and storage; and land application.

This course is available for EM credit.

**2265T Integrated Pest Management** U 2

A review and application of sustainable methods for controlling disease, insect, and weed pests in crops.

Prereq or concur: 2411T (260T). Not open to students with credit for 265T. This course is available for EM credit.

**2280T Applied Precision Agriculture** U 3

An introduction to precision agriculture technologies including auto-guidance, prescription mapping, variable rate technologies, and remote sensing with a focus on practical application of the technologies in modern production systems.

**2300T Introduction to Soil Science** U 3

An introduction to soil physical, chemical, and biological properties related to plant systems, environmental quality, and construction.

Prereq: Not open to students with credit for 221T. This course is available for EM credit.

**2301T Introduction to Soil Science Laboratory** U 1

Laboratory analysis of soil physical, chemical, and biological properties related to plant systems, environmental quality, and construction.

Prereq or concur: 2300T. Not open to students with credit for 221T. This course is available for EM credit.

**2324T Soil Management** U 3

A study of sustainable-use of soil resources related to soil formation, mechanics, and erosion control.

Prereq: 2300T and 2301T. This course is available for EM credit.

**2411T Grain and Oilseed Crops** U 3

A study of the cultural practices and production principles for grain and oilseed crops.

Prereq: GenBiol 1200T or 1250T or Biology 1113. This course is available for EM credit.

**2412T Technology and Field Management of Forage Crops** U 3

An applied study of the crop species, field management practices, and agricultural technologies used to grow grasses, legumes, and forbs for forage and livestock production systems.

This course is available for EM credit.

**2422T Weed Control Technology** U 3

An introduction to the application of technologies used to control weeds in field cropping systems, including biological, chemical, and mechanical methods.

This course is available for EM credit.

**2580T Soil Fertility and Fertilizers** U 3

A study of plant nutrient cycles, fertilizer recommendations, application of ag-lime, fertilizers, animal manure, and municipal biosolids.

Prereq: 2300T and 2301T. This course is available for EM credit.

**3800T Principles of Farm Business Management** U 4

A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving.

Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: BusTec 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for BusTec 240T. This course is available for EM credit. Cross-listed in AnmITec.

### Czech

**1101 Elementary Czech I** U 4

Introduction to Czech; development of speaking, listening, reading, and writing skills in cultural context. Closed to native speakers.

Prereq: Not open to students with credit for 101, or 2 or more years of study in this language in high school, except by permission of department. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102 Elementary Czech II** U 4

Continued development of speaking, listening, reading, and writing skills in cultural context. Closed to native speakers of this language.

Prereq: 1101 (101.01). Not open to students with credit for 102 or 103. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1103 Intermediate Czech I** U 4

Continued development of speaking, listening, reading, and writing skills in cultural context.

Prereq: 1102 (102.01). Not open to students with credit for 104, or to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GE for lang course.

**2104 Intermediate Czech II U 4**

Increasing functional ability in speaking, listening, reading, and writing practice, vocabulary-building; new grammar structures; start developing higher-level language skills in Czech. Closed to native speakers.

Prereq: 1103, or 5 cr hrs for 104.51 or 111. Not open to students with credit for 407.51.

**Dance****1101 Contemporary I U 1 - 3**

Non-major introduction to studio practice of contemporary movement forms; includes survey of the history, theory, and/or literature of contemporary movement forms.

Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.

**1111 Ballet I U 1 - 3**

Non-major introduction to studio practice of classical ballet; includes survey of the history, theory, and/or literature of classical ballet.

Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.

**1141 Jazz I U 1 - 3**

Non-major introduction to studio practice of jazz dance; includes survey of the history, theory, and/or literature of jazz dance.

Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.

**1151 Hip Hop I U 1 - 3**

Non-major introduction to studio practice of hip hop dance; includes survey of the history, theory, and/or literature of hip hop dance.

Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.

**1161 Tap I U 1 - 3**

Non-major introduction to studio practice of tap dance; includes survey of the history, theory, and/or literature of tap dance.

Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.

**2102 Contemporary II U 1 - 3**

Non-major intermediate level studio practice in contemporary movement forms; includes survey of the history, theory, and/or literature of contemporary movement forms.

Prereq: One year of 1101 (201.01), or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2103 Contemporary III U 1 - 3**

Non-major advanced level studio practice in contemporary movement forms; includes survey of the history, theory, and/or literature of contemporary movement forms.

Prereq: One year of 2102 (202.01), or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2112 Ballet II U 1 - 3**

Non-major intermediate level studio practice in classical ballet; includes survey of the history, theory, and/or literature of classical ballet.

Prereq: One year of 1111 (201.02), or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2113 Ballet III U 1 - 3**

Non-major advanced level studio practice in classical ballet; includes survey of the history, theory, and/or literature of classical ballet.

Prereq: One year of 2112 (202.02), or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2121 Improvisation U 1 - 3**

Introduction to studio practice of improvisation; includes survey of the history, theory, and/or literature of improvisation.

Repeatable to a maximum of 8 cr hrs or 4 completions.

**2142 Jazz II U 1 - 3**

Non-major intermediate level studio practice of jazz dance; includes survey of the history, theory, and/or literature of jazz dance.

Prereq: One year of 1141 (201.03) or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2143 Jazz III U 1 - 3**

Non-major advanced level studio practice of jazz dance; includes survey of the history, theory, and/or literature of jazz dance.

Prereq: One year of 2142 (202.03) or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2152 Hip Hop II U 1 - 3**

Non-major intermediate/advanced level studio practice of hip hop dance; includes survey of the history, theory, and/or literature of hip hop dance.

Prereq: One Year of 1151 (201.06) or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2162 Tap II U 1 - 3**

Non-major intermediate/advanced level studio practice of tap dance; includes survey of the history, theory, and/or literature of tap dance.

Prereq: One year of 1161 or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2171 Pilates Mat I U 1 - 3**

Introduction to Pilates mat for non-majors; includes survey of the history, theory, and/or literature of Pilates.

Repeatable to a maximum of 4 cr hrs or 2 completions.

**2175 Yoga U 1 - 3**

Yoga practice for non-majors; includes survey of the history, theory, and/or literature of yoga.

Repeatable to a maximum of 8 cr hrs or 4 completions.

**2176 Bartenieff Fundamentals U 1 - 3**

Bartenieff Fundamentals taught by certified practitioner (CMA) for non-majors; includes survey of the history, theory, and/or literature of Bartenieff Fundamentals.

Repeatable to a maximum of 4 cr hrs or 2 completions.

**2178 Floor Work U 1 - 3**

Floor work for non-majors; includes survey of the history, theory, and/or literature of floor work.

Repeatable to a maximum of 4 cr hrs or 2 completions.

**2181 Social Dance U 1 - 3**

Social dance for non-majors; includes survey of the history, theory, and/or literature of social dance.

Repeatable to a maximum of 8 cr hrs or 4 completions.

**2190 Movement Practice: Special Topics U 1 - 3**

Special topics in movement practice for non-majors.

Prereq: Enrollment in Dance major. Repeatable to a maximum of 8 cr hrs or 4 completions.

**2201 Minors Composition U 2 - 3**

Introduction to composition for dance minors.

Prereq: Not open to students with credit for 211.03. Repeatable to a maximum of 4 cr hrs or 2 completions.

**2301 Analysis for Minors U 1 - 3**

Introduction to analysis of movement for dance minors.

Prereq: Not open to students with credit for 620.

**2367 Writing About Dance U 3**

Provides an opportunity to view, discuss, read, think and write about contemporary dance through the practice of criticism.

Prereq: English 1110.01 (110) or equiv. Not open to students with credit for 367.01. GE writing and comm course: level 2.

**2367H Honors Writing About Dance U 3**

Provides a rigorous opportunity to view, discuss, read, think and write about contemporary dance and its history through the study and practice of criticism.

Prereq: Honors standing, and English 1110.01 (110) or equiv, or permission of instructor. Not open to students with credit for 367.01H.

**2401 Western Concert Dance: Renaissance to Present U 3**

Includes European origins of classical ballet, Africanist contributions, postmodern impulses; looks at aesthetic, cultural, and political themes in the history of concert dance in America.

Prereq: Not open to students with credit for 200. GE VPA course.

**2601 Production U 1 - 3**

Activities in dance production; includes lectures, readings, and discussions.

Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 3 cr hrs or 2 completions. VSP Admis Cond course.

**2701 Music Skills for Dance U 2**

This course is an introduction to essential music skills. The content will explore foundational music theory, appreciation, and music for dance.

Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 615.

**2702 Creative Technologies for Dance U 2**

Introduction to technology used in the field of dance for promotional material development and art making. Includes digital image creation / manipulation, video editing, e-portfolio building, critical image analysis and foundational composition theory.

Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 289.

**2801 Introductory Seminar I U 1**

Introduction to The Ohio State University, the College of Arts and Sciences and the Department of Dance and the available resources, academic requirements, and diverse perspectives about dance research and creative activity.

Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 100 or 615. VSP Admis Cond course.

**2802 Introductory Seminar II U 1**

Continuation of introduction to The Ohio State University, the College of Arts and Sciences and the Department of Dance and the available resources, academic requirements, and diverse perspectives about dance research and creative activity.

Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 260 or 289.02. VSP Admis Cond course.

## 118 Dance

<b>3101</b>	<b>Contemporary Part I</b>	<b>U</b>	<b>1 - 3</b>
Foundational level of contemporary movement forms for dance majors. Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. VSP Admis Cond course.			
<b>3102</b>	<b>Contemporary Part II</b>	<b>U</b>	<b>1 - 3</b>
Foundational level of contemporary movement forms for dance majors. Prereq: Enrollment in Dance major or permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. VSP Admis Cond course.			
<b>3111</b>	<b>Ballet Part I</b>	<b>U</b>	<b>1 - 3</b>
Foundational level of classical ballet for dance majors. Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. VSP Admis Cond course.			
<b>3112</b>	<b>Ballet Part II</b>	<b>U</b>	<b>1 - 3</b>
Foundational level of classical ballet for dance majors. Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. VSP Admis Cond course.			
<b>3201</b>	<b>Composition I</b>	<b>U</b>	<b>3</b>
Foundational level of composition. Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 211.03, 211.04, or 620. VSP Admis Cond course.			
<b>3202</b>	<b>Composition II</b>	<b>U</b>	<b>3</b>
Further experience in composition. Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 211.03 or 645. VSP Admis Cond course.			
<b>3301</b>	<b>Analysis</b>	<b>U</b>	<b>3</b>
Foundational level of analysis of movement. Prereq: Enrollment in Dance major, or permission of instructor. Not open to students with credit for 621, 620, or 605. VSP Admis Cond course.			
<b>3401</b>	<b>Dance in Popular Culture</b>	<b>U</b>	<b>3</b>
Popular dance in the United States, with an emphasis on how movement constructs identity and community. Prereq: Not open to students with credit for 357. GE cultures and ideas and diversity soc div in the US course.			
<b>3402</b>	<b>Dance in Global Contexts</b>	<b>U</b>	<b>3</b>
Surveys dance forms from around the globe, offering insights into the religious, social, and political functions of dances in their historical and contemporary practices. GE cultures and ideas and diversity global studies course. VSP Admis Cond course.			
<b>3411</b>	<b>History/Theory/Literature I</b>	<b>U</b>	<b>3</b>
Survey of dance from the Renaissance to the early twentieth century. Prereq: Enrollment in Dance major. VSP Admis Cond course.			
<b>3412</b>	<b>History/Theory/Literature II</b>	<b>U</b>	<b>3</b>
Survey of dance from the early twentieth century to the present. Prereq: Enrollment in Dance major. VSP Admis Cond course.			
<b>3501</b>	<b>Dance Education</b>	<b>U</b>	<b>3</b>
Foundational study in dance education. Prereq: Enrollment in Dance major. VSP Admis Cond course.			
<b>3801</b>	<b>Kinesiology</b>	<b>U</b>	<b>3</b>
Exploration of the skeleton and muscles for mechanical efficiency of movement, including principles of stability and motion as they relate to dance, for dance majors and minors. Prereq: Enrollment in Dance major. Not open to students with credit for 671.01. VSP Admis Cond course.			
<b>3999H</b>	<b>Research and Creativity in Dance</b>	<b>U</b>	<b>1 - 10</b>
Honors Research and Creativity in Dance. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U. VSP Admis Cond course.			
<b>4101</b>	<b>Contemporary Part I</b>	<b>U</b>	<b>1 - 3</b>
Further expertise in contemporary movement forms for dance majors. Prereq: Enrollment in Dance major. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>4102</b>	<b>Contemporary Part II</b>	<b>U</b>	<b>1 - 3</b>
Further expertise in contemporary movement forms for dance majors. Prereq: Enrollment in Dance major. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>4111</b>	<b>Ballet Part I</b>	<b>U</b>	<b>1 - 3</b>
Further expertise in classical ballet for dance majors. Prereq: Enrollment in Dance major. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			

<b>4112</b>	<b>Ballet Part II</b>	<b>U</b>	<b>1 - 3</b>
Further expertise in classical ballet for dance majors. Prereq: Enrollment in Dance major. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>4189</b>	<b>Field Experience</b>	<b>U</b>	<b>0 - 3</b>
Internship, practicum, or professional development activity, including teaching experience, under a faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. VSP Admis Cond course.			
<b>4193</b>	<b>Independent Study</b>	<b>U</b>	<b>1 - 10</b>
Independent projects undertaken by BFA students, under supervision of faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U. VSP Admis Cond course.			
<b>4193H</b>	<b>Independent Study: Honors</b>	<b>U</b>	<b>1 - 10</b>
Independent projects undertaken by BFA students in honors, under supervision of faculty mentor. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U. VSP Admis Cond course.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group studies in dance. Prereq: Undergrad standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>4200</b>	<b>Choreography Workshop</b>	<b>U</b>	<b>1 - 3</b>
Workshop providing a platform for ongoing choreographic projects, includes peer and faculty observation and critique. Prereq: 3201 (211.03) and 3202 (211.04), and enrollment in Dance major. Repeatable to a maximum of 18 cr hrs or 6 completions. VSP Admis Cond course.			
<b>4201</b>	<b>Topics in Dance Composition</b>	<b>U</b>	<b>2 - 3</b>
Topics in dance composition. Prereq: 3201 (211.03) and 3202 (211.04), and enrollment in Dance major. Repeatable to a maximum of 9 cr hrs or 3 completions. VSP Admis Cond course.			
<b>4202</b>	<b>Music in Dance Composition</b>	<b>U</b>	<b>2 - 3</b>
Study of music suitable for choreographic purposes and the various approaches to the use of music in dance composition. Prereq: Enrollment in Dance major, and 3201, or 3202, or 645 with Music 250 or 251. Repeatable to a maximum of 9 cr hrs or 3 completions. VSP Admis Cond course.			
<b>4203</b>	<b>Group Forms</b>	<b>U</b>	<b>2 - 3</b>
Composing group dances and exploring compositional devices and craft unique to group choreography. Prereq: Enrollment in Dance major, and 3201 (211.03), or 3202 (211.04). Repeatable to a maximum of 9 cr hrs or 3 completions. VSP Admis Cond course.			
<b>4290</b>	<b>Composition: Special Topics</b>	<b>U</b>	<b>1 - 3</b>
Special topics in composition. Prereq: Enrollment in Dance major. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>4490</b>	<b>History/Theory/ Literature Special Topics</b>	<b>U</b>	<b>1 - 3</b>
Special topics in history/theory/literature. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>4500</b>	<b>Directed Teaching</b>	<b>U</b>	<b>1 - 3</b>
Designed to aid prospective teachers of dance in their development of essential teaching skills in a variety of settings. Prereq: Enrollment in Dance major, and 3501 (289.01 or 289.02), or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. VSP Admis Cond course.			
<b>4501</b>	<b>Dance for Children</b>	<b>U</b>	<b>3</b>
Foundation for teaching dance to children. Prereq: Enrollment in Dance major, and 3501 (289.01 or 289.02), or permission of instructor. Not open to students with credit for 687.01 or 687.02. VSP Admis Cond course.			
<b>4502</b>	<b>Methods and Materials</b>	<b>U</b>	<b>3</b>
Foundations for teaching; laboratory problems, lectures, readings, and discussion. Prereq: Enrollment in Dance major, and 3501 (289.01 or 289.02), or permission of instructor. Not open to students with credit for 688. VSP Admis Cond course.			
<b>4700</b>	<b>Repertory</b>	<b>U</b>	<b>1 - 3</b>
Studio-based experience in learning a new or existing dance work, may include informal performance. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. VSP Admis Cond course.			
<b>4701</b>	<b>Performance</b>	<b>U</b>	<b>1 - 3</b>
Rehearsal process and performance of a dance work choreographed by resident or visiting artists. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. VSP Admis Cond course.			



<b>4790</b>	<b>Repertory: Special Topics</b>	<b>U</b>	<b>1 - 3</b>
Special topics in repertory. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>4801</b>	<b>Senior Seminar I</b>	<b>U</b>	<b>1</b>
The primary vehicle for the mentoring and advising of dance majors in the senior year; includes grant writing and professional development. Prereq: Enrollment in Dance major, and Sr standing, or permission of instructor. VSP Admis Cond course.			
<b>4802</b>	<b>Senior Seminar II</b>	<b>U</b>	<b>1</b>
The primary vehicle for the mentoring and advising of dance majors in the senior year; includes production of the senior project, current trends in the dance field, and technology literacy for dancers. Prereq: Enrollment in Dance major, and Sr standing, or permission of instructor. VSP Admis Cond course.			
<b>4804</b>	<b>Interdisciplinary Workshop</b>	<b>U</b>	<b>1 - 3</b>
Advanced problems in dance and related areas; nature of workshop based on selected topics. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. VSP Admis Cond course.			
<b>4805</b>	<b>Interdisciplinary Practicum</b>	<b>U</b>	<b>1 - 3</b>
Advanced problems in dance and related areas; nature of practicum based on selected topics. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. VSP Admis Cond course.			
<b>4998</b>	<b>Senior Project</b>	<b>U</b>	<b>1 - 5</b>
Activities leading to the completion of the BFA creative project; in partial fulfillment of the BFA degree. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U. VSP Admis Cond course.			
<b>4998H</b>	<b>Honors Senior Project</b>	<b>U</b>	<b>1 - 5</b>
Activities leading to the completion of the BFA creative project; in partial fulfillment of the BFA degree with honors. Prereq: Honors standing or permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U. VSP Admis Cond course.			
<b>4999</b>	<b>Distinction Project</b>	<b>U</b>	<b>1 - 5</b>
Activities leading to the completion of the BFA distinction project; in partial fulfillment of the BFA degree. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U. VSP Admis Cond course.			
<b>4999H</b>	<b>Honors Distinction Project</b>	<b>U</b>	<b>1 - 5</b>
Activities leading to the completion of the BFA distinction project; in partial fulfillment of the BFA degree with honors. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U. VSP Admis Cond course.			
<b>5100</b>	<b>Alternative Movement Practice</b>	<b>U G</b>	<b>1 - 3</b>
Alternative movement practice for dance majors and graduate dance students. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U. VSP Admis Cond course.			
<b>5101</b>	<b>Contemporary Part I</b>	<b>U G</b>	<b>1 - 3</b>
Advanced practice in contemporary movement forms for dance majors and graduate dance students. Prereq: Enrollment in Dance major. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5102</b>	<b>Contemporary Part II</b>	<b>U G</b>	<b>1 - 3</b>
Advanced practice in contemporary movement forms for dance majors and graduate dance students. Prereq: Enrollment in Dance major. Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.			
<b>5105</b>	<b>Contemporary Dance Practice</b>	<b>U G</b>	<b>1</b>
Intermediate and advanced practice in contemporary dance for dance majors and graduate dance students, and others by permission. This is designed as a second technique class, offered later in the day, and is intended as an opportunity for deepening one's practice and technique. Prereq: Enrollment in Dance major, or permission of instructor or department. Repeatable to a maximum of 12 cr hrs.			
<b>5106</b>	<b>Contemporary Dance Practice Part II</b>	<b>U G</b>	<b>1</b>
Intermediate and advanced practice in contemporary dance for dance majors and graduate dance students, and others by permission. This is designed as a second technique class, offered later in the day, and is intended as an opportunity for deepening one's practice and technique. Sp Sem. Prereq: Enrollment in Dance major, or permission of instructor or department. Repeatable to a maximum of 12 cr hrs.			

<b>5111</b>	<b>Ballet Part I</b>	<b>U G</b>	<b>1 - 3</b>
Advanced practice in classical ballet for dance majors and graduate dance students. Prereq: Enrollment in Dance major. Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.			
<b>5112</b>	<b>Ballet Part II</b>	<b>U G</b>	<b>1 - 3</b>
Advanced practice in classical ballet for dance majors and graduate dance students. Prereq: Enrollment in Dance major. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5115</b>	<b>Ballet Practice Part 1</b>	<b>U G</b>	<b>1</b>
Intermediate and advanced practice in classical ballet for dance majors and graduate dance students, and others by permission. This is designed as a second technique class, offered later in the day, and is intended as an opportunity for deepening one's practice and technique. Prereq: Enrollment in Dance major, or permission of instructor or department. Repeatable to a maximum of 12 cr hrs.			
<b>5116</b>	<b>Ballet Practice Part II</b>	<b>U G</b>	<b>1</b>
Intermediate and advanced practice in classical ballet for dance majors and graduate dance students, and others by permission. This is designed as a second technique class, offered later in the day, and is intended as an opportunity for deepening one's practice and technique. Prereq: Enrollment in Dance major, or permission of instructor or department. Repeatable to a maximum of 12 cr hrs.			
<b>5121</b>	<b>Improvisation</b>	<b>U G</b>	<b>1 - 3</b>
This course is for experienced dance practitioners who have had some introductory experience with improvisation and allows for advanced explorations of dance improvisation methodologies and critical analysis of the relationship of this work to other domains. Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>5171</b>	<b>Pilates Mat I</b>	<b>U G</b>	<b>1 - 2</b>
Foundational level of Pilates mat for dance majors and graduate dance students. Prereq: Enrollment in Dance major. Repeatable to a maximum of 4 cr hrs or 2 completions. VSP Admis Cond course.			
<b>5173</b>	<b>Pilates Reformer I</b>	<b>U G</b>	<b>1 - 2</b>
Foundational level of Pilates reformer for dance majors and graduate dance students. Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions. VSP Admis Cond course.			
<b>5174</b>	<b>Pilates Reformer II</b>	<b>U G</b>	<b>1 - 2</b>
Advanced practice in Pilates reformer for dance majors and graduate dance students. Prereq: Enrollment in Dance major, or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions.			
<b>5175</b>	<b>Yoga</b>	<b>U G</b>	<b>1 - 3</b>
Yoga practice for dance and health sciences majors and graduate students. Prereq: Enrollment in Dance or Health Sciences major, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5176</b>	<b>Bartenieff Fundamentals</b>	<b>U G</b>	<b>1 - 2</b>
Bartenieff Fundamentals taught by certified practitioner (CMA) for dance majors and graduate dance students. Prereq: Enrollment in Dance major or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions.			
<b>5177</b>	<b>Alexander Technique</b>	<b>U G</b>	<b>1 - 2</b>
The relationship of kinesthetic perception and the postural reflexes to physical coordination in performance. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. Cross-listed in Theatre and Music.			
<b>5178</b>	<b>Floor Work</b>	<b>U G</b>	<b>1 - 2</b>
Floor work for dance majors and graduate dance students. Prereq: Enrollment in Dance major or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.			
<b>5190</b>	<b>Movement Practice: Special Topics</b>	<b>U G</b>	<b>1 - 3</b>
Special topics in movement practice for dance majors and graduate dance students. Prereq: Enrollment in Dance major or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>5191</b>	<b>Eurhythmics</b>	<b>U G</b>	<b>1 - 3</b>
Eurhythmics for dance majors and graduate dance students. Prereq: Enrollment in Dance major or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.			
<b>5194</b>	<b>Graduate and Undergraduate Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group studies in dance. Prereq: Grad or Undergrad standing in Dance, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			

## 120 Dance

<b>5200</b>	<b>Concert Workshop</b>	<b>U G</b>	<b>1 - 3</b>
Workshop in preparation for bringing a choreographed piece to a performance setting, includes faculty and peer feedback. Prereq: Enrollment in Dance major. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>5211</b>	<b>Dance - Film I</b>	<b>U G</b>	<b>3</b>
An introduction to creating short films of dance made specifically for the camera. Basics of camera and Final Cut Pro are taught as three film projects are created. Prereq: Jr standing, and enrollment in Dance major; or grad standing; or permission of instructor.			
<b>5212</b>	<b>Dance - Film II</b>	<b>U G</b>	<b>3</b>
Continuing studies from Dance Film I in dance on camera, exploring aspects of history, composition and technology as a foundation for video production. Prereq: 5211, or permission of instructor.			
<b>5213</b>	<b>Intermedia Performance</b>	<b>U G</b>	<b>2 - 3</b>
Exploration of the unique characteristics of performance that integrates movement and digital media through hands-on creative and technological projects. Prereq: Enrollment in Dance major, and Jr standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. VSP Admis Cond course.			
<b>5601</b>	<b>Production: Practicum</b>	<b>U G</b>	<b>1 - 3</b>
Hands-on exploration of elements of dance production. Prereq: Enrollment in Dance major, and 2601 (298), or Grad standing, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5602</b>	<b>Lighting: Practicum</b>	<b>U G</b>	<b>1 - 3</b>
Hands-on exploration of elements of dance lighting. Prereq: Enrollment in Dance major or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5603</b>	<b>Costume: Practicum</b>	<b>U G</b>	<b>1 - 3</b>
Hands-on exploration of elements of dance costuming. Prereq: 2601 (298), and enrollment in Dance major; or Grad standing; or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions.			
<b>5611</b>	<b>Technology: Practicum</b>	<b>U G</b>	<b>1 - 3</b>
Hands-on exploration of elements of dance technology Prereq: Enrollment in Dance major, and 2601 (298), or Grad standing, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5612</b>	<b>Digital Video Editing: Practicum</b>	<b>U G</b>	<b>1 - 3</b>
Introduction to practical skills in desktop non-linear digital video editing with particular attention to motion and action editing in dance. Prereq: Enrollment in Dance major, and 2601 (298), or Grad standing, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>5614</b>	<b>Sound Design for Dance</b>	<b>U G</b>	<b>1 - 3</b>
Course focusing on how music/sound design techniques are used in composing for dance. Prereq: Enrollment in Dance major, and 2601 (298), or Grad standing, or permission of instructor. Not open to students with credit for 632. VSP Admis Cond course.			
<b>5615</b>	<b>Costume Design for Dance</b>	<b>U G</b>	<b>1 - 3</b>
Course focusing on how costuming techniques are used in designing for dance. Prereq: 2601 (298), and enrollment in Dance major; or Grad standing; or permission of instructor. Not open to students with credit for 634.			
<b>5798</b>	<b>Study Tour</b>	<b>U G</b>	<b>1 - 15</b>
Off-campus study tour in dance outside the US. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 3 completions. This course is graded S/U. VSP Admis Cond course.			
<b>6189</b>	<b>Field Experience</b>	<b>G</b>	<b>1 - 3</b>
Internship, practicum or professional development activity, including teaching experience, under a faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. VSP Admis Cond course.			
<b>6193</b>	<b>Independent Study: MFA</b>	<b>G</b>	<b>1 - 5</b>
Independent projects undertaken by MFA students under supervision of faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 16 completions. This course is graded S/U. VSP Admis Cond course.			
<b>6194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group studies in dance. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>6200</b>	<b>Choreography Workshop</b>	<b>G</b>	<b>1 - 3</b>
Workshop providing a platform for on-going choreographic projects, includes faculty and peer observation and critique. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. VSP Admis Cond course.			

<b>6202</b>	<b>Music and Choreography</b>	<b>G</b>	<b>2 - 3</b>
Investigation of dance composition with emphasis on structure and the music/dance relationship. Prereq: Grad standing in Dance or permission of instructor. Not open to students with credit for 846. VSP Admis Cond course.			
<b>6203</b>	<b>Group Forms</b>	<b>G</b>	<b>2 - 3</b>
Composition of group dances, and exploration of devices and craft unique to group choreography. Prereq: Grad standing in Dance or permission of instructor. Not open to students with credit for 749. VSP Admis Cond course.			
<b>6204</b>	<b>Choreographic Process</b>	<b>G</b>	<b>2 - 3</b>
Investigation of dance composition with emphasis on the choreographic process and group interaction. Prereq: Grad standing in Dance or permission of instructor. Not open to students with credit for 847. VSP Admis Cond course.			
<b>6290</b>	<b>Composition: Special Topics</b>	<b>G</b>	<b>1 - 3</b>
Special topics in dance composition. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. VSP Admis Cond course.			
<b>6301</b>	<b>Analysis I</b>	<b>G</b>	<b>2 - 3</b>
Foundational course in Laban Movement Analysis (LMA), including studio-based studies, practice in observation, and topical readings and viewings. Prereq: Grad standing in Dance. Not open to students with credit for 707. VSP Admis Cond course.			
<b>6700</b>	<b>Repertory</b>	<b>G</b>	<b>1 - 3</b>
Studio-based experience in learning a new or existing dance work, may include informal performance. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. VSP Admis Cond course.			
<b>6701</b>	<b>Performance</b>	<b>G</b>	<b>1 - 3</b>
Rehearsal process and performance of a dance work choreographed by resident or visiting artists. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>6702</b>	<b>Performance Techniques</b>	<b>G</b>	<b>2 - 3</b>
Interdisciplinary seminar exploring the creative and practical aspects of performance through exercises, readings and discussion. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. VSP Admis Cond course.			
<b>6790</b>	<b>Repertory/Performance: Special Topics</b>	<b>G</b>	<b>1 - 3</b>
Special topics in repertory and performance. Prereq: Grad standing in Dance or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.			
<b>6801</b>	<b>Foundations in Dance Research</b>	<b>G</b>	<b>3</b>
Introductory graduate seminar presenting department and university resources for dance research, academic writing skills, and technological literacy. Prereq: Grad standing in Dance or permission of instructor. Not open to students with credit for 801.51, 801.91. VSP Admis Cond course.			
<b>6802</b>	<b>Foundations in Dance Pedagogy</b>	<b>G</b>	<b>3</b>
Introductory graduate seminar including practical and theoretical approaches to studio- and lecture-based class pedagogy and topics in higher education. Prereq: Grad standing in Dance, or permission of instructor. Not open to students with credit for 801.81, 894.			
<b>6804</b>	<b>Interdisciplinary Workshop</b>	<b>G</b>	<b>1 - 3</b>
Advanced problems in dance and related areas; nature of workshop based on selected topics. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>7303</b>	<b>Directing from Score</b>	<b>G</b>	<b>3</b>
Teaching and coaching of a dance learned from a Labanotated score. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7402</b>	<b>Dance in Times of Turbulence</b>	<b>G</b>	<b>4</b>
Developments in Western theatrical dance from the late eighteenth century until the end of World War I. Prereq: Grad standing or permission of instructor. Not open to students with credit for 757. VSP Admis Cond course.			
<b>7403</b>	<b>Postmodernism in Dance I</b>	<b>G</b>	<b>4</b>
Inquiry into aesthetic points of view, beliefs and assumptions inherent in dance practices and dance criticism from the 1960s through the mid-1980s. Prereq: Grad standing or permission of instructor. Not open to students with credit for 759. VSP Admis Cond course.			

<b>7404</b>	<b>Postmodernism in Dance II</b>	<b>G</b>	<b>4</b>
Inquiry into aesthetic points of view, beliefs and assumptions inherent in dance practices and dance criticism from the mid-1980s to the present. Prereq: Grad standing or permission of instructor. Not open to students with credit for 759, 801.31. VSP Admis Cond course.			
<b>7405</b>	<b>Black Continuum in American Dance</b>	<b>G</b>	<b>2 - 4</b>
Examination of dance genres, performance venues, and cultural workers that have shaped the Black continuum in American dance from the antebellum era to the present. Prereq: Grad standing or permission of instructor. Not open to students with credit for 801.30. VSP Admis Cond course.			
<b>7406</b>	<b>Theories of the Body</b>	<b>G</b>	<b>4</b>
Cross-disciplinary seminar in critical theory considering the body as flesh and bone and as a discursive entity. Prereq: Grad standing or permission of instructor. Not open to students with credit for 860. VSP Admis Cond course.			
<b>7408</b>	<b>Bodies on the Line</b>	<b>G</b>	<b>4</b>
Interdisciplinary analysis of the body as a site of political investment and contestation in stage-based performances and everyday life. Prereq: Grad standing or permission of instructor. Not open to students with credit for 760.03, 860.01. VSP Admis Cond course.			
<b>7409</b>	<b>Ethnographies of Dance and Performance</b>	<b>G</b>	<b>4</b>
Reading and conducting ethnographic research in areas of dance and performance, including feminist and post-colonial approaches to Western, non-Western, and globalized forms. Prereq: Grad standing or permission of instructor. VSP Admis Cond course.			
<b>7490</b>	<b>History/Theory/Literature: Special Topics</b>	<b>G</b>	<b>1 - 4</b>
Special topics in history/theory/literature of dance. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions. VSP Admis Cond course.			
<b>7500</b>	<b>Directed Teaching MFA or PhD</b>	<b>G</b>	<b>1 - 3</b>
Experience designed to aid prospective teachers of dance in their development of essential teaching skills in a variety of settings with a faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. VSP Admis Cond course.			
<b>7600</b>	<b>MFA Project: Production</b>	<b>G</b>	<b>1 - 2</b>
Seminar focusing on production elements relevant to MFA projects during semester of presentation. Prereq: Grad standing in Dance or permission of instructor. Not open to students with credit for 893.04. Repeatable to a maximum of 20 cr hrs or 20 completions.			
<b>7900</b>	<b>Theories and Methods</b>	<b>G</b>	<b>4</b>
Theories and methods of research in dance studies; PhD core course. Prereq: Grad standing in Dance or permission of instructor. Not open to students with credit for 880. VSP Admis Cond course.			
<b>7901</b>	<b>History/Theory/Literature Choreography</b>	<b>G</b>	<b>4</b>
Inquiry into selected topics within the history, theory and literature of choreography, PhD core course. Prereq: Grad standing in Dance or permission of instructor. VSP Admis Cond course.			
<b>7902</b>	<b>History/Theory/Literature Analysis of Movement</b>	<b>G</b>	<b>4</b>
Inquiry into selected topics within the history, theory and literature of the analysis of movement, PhD core course. Prereq: Grad standing in Dance or permission of instructor. VSP Admis Cond course.			
<b>7998</b>	<b>MFA Comprehensive Examination</b>	<b>G</b>	<b>1 - 2</b>
Examination questions written in partial fulfillment of the MFA degree. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U. VSP Admis Cond course.			
<b>7999</b>	<b>MFA Project</b>	<b>G</b>	<b>1 - 10</b>
Activities leading to the completion of the MFA creative project, in partial fulfillment of the MFA degree. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U. VSP Admis Cond course.			
<b>8193</b>	<b>PhD Independent Study</b>	<b>G</b>	<b>1 - 5</b>
Independent projects undertaken by PhD students under supervision of faculty mentor. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 16 completions. This course is graded S/U. VSP Admis Cond course.			
<b>8200</b>	<b>PhD Qualifying Examination</b>	<b>G</b>	<b>1 - 2</b>
Writing of qualifying examination question to determine capacity to proceed through the doctoral degree in Dance Studies. Prereq: Doctoral standing in Dance Studies.			
<b>8800</b>	<b>PhD Pre-Candidacy Independent Readings</b>	<b>G</b>	<b>1 - 8</b>
Selection and reading of appropriate texts toward designing candidacy examination areas. Prereq: Doctoral standing in Dance Studies. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			

<b>8998</b>	<b>Candidacy Exams</b>	<b>G</b>	<b>3 - 18</b>
Examination questions written in partial fulfillment of the PhD degree. Prereq: Permission of instructor. This course is graded S/U. VSP Admis Cond course.			

<b>8999</b>	<b>Dissertation</b>	<b>G</b>	<b>1 - 10</b>
Culminating written document completed in fulfillment of the PhD degree. Prereq: Permission of instructor. Repeatable. This course is graded S/U. VSP Admis Cond course.			

## Dental Hygiene

<b>1100</b>	<b>Dental Hygiene Survey</b>	<b>U</b>	<b>1</b>
Introduction to the university and the dental hygiene program. University policies, procedures and resources; students' rights and responsibilities; academic requirements; career and professional issues. Prereq: Admission to pre-DHY, or permission of instructor.			
<b>2110</b>	<b>Oral Anatomy, Tooth Morphology and Occlusion</b>	<b>U</b>	<b>4</b>
Instruction in the basics of dental morphology and oral anatomy to aid in providing dental hygiene therapy. Prereq: Admission to DHY major.			
<b>2130</b>	<b>Oral Radiography</b>	<b>U</b>	<b>2</b>
Introduction to physics, biology and technical components involved in exposing, processing and interpreting dental radiographs. Prereq: Admission to DHY major.			
<b>2140</b>	<b>Oral Histology and Embryology</b>	<b>U</b>	<b>2</b>
A study of the microscopic anatomy of the teeth and surrounding structures; the development of the teeth, oral cavity, and face. Prereq: Admission to Dental Hygiene major.			
<b>2150</b>	<b>Periodontology</b>	<b>U</b>	<b>2</b>
Introduction to principles of periodontology and periodontal medicine. Anatomy, physiology, histology and functions of dental tissue are discussed in relationship to health and disease of the periodontium. Prereq: Admission to DHY major.			
<b>2170</b>	<b>Dental Materials Laboratory</b>	<b>U</b>	<b>2</b>
Instruction in the composition, chemical and physical properties, proper manipulation and use of materials used in dentistry. Prereq: 2110.			
<b>2220</b>	<b>The Profession of Dental Hygiene</b>	<b>U</b>	<b>1</b>
Introduction to the history, professional, legal, and ethical aspects of dental hygiene. Prereq: Admission to DHY major.			
<b>2240</b>	<b>Oral Health and Disease Prevention</b>	<b>U</b>	<b>2</b>
Introduction and knowledge of appropriate use of materials and techniques in patient education and dental hygiene practice to prevent, arrest, and control dental diseases. Prereq: Admission to DHY major.			
<b>2300</b>	<b>Dental Hygiene Pre-Clinic</b>	<b>U</b>	<b>4</b>
Introduction to procedures and techniques necessary to function as a co-therapist in the dental clinical setting. Prereq: Admission to DHY major.			
<b>2310</b>	<b>Dental Hygiene Clinic I</b>	<b>U</b>	<b>3</b>
Clinical application of the principles and technical procedures of patient management in the practice of dental hygiene. Prereq: A grade of C- or above in 2110, 2130, 2150, and 2300, and recommendation of faculty.			
<b>2400</b>	<b>Scientific Inquiry</b>	<b>U</b>	<b>1</b>
Introduction to the process of scientific inquiry, research methodology, and basic statistical concepts. Research methodology from a dental perspective will be introduced for community dentistry and research poster projects. Prereq: Admission to DHY major. Not open to students with credit for 3410.			
<b>3110</b>	<b>General Pathology and Medicine for Dental Hygiene</b>	<b>U</b>	<b>2</b>
Introduction to general pathology and medicine for dental hygiene practice. Students will learn to review patient's medical history and recognize common medical conditions, implications for oral health care and how to alter treatment plans for medically compromised patients. Prereq: 2300.			
<b>3130</b>	<b>Oral Pathology</b>	<b>U</b>	<b>2</b>
Introduction to current concepts regarding the pathogenesis and clinical features of oral diseases. Prereq: 3120.			
<b>3140</b>	<b>Pain and Anxiety Management</b>	<b>U</b>	<b>2</b>
Instruction in commonly used dental office techniques for managing patient anxiety and pain primarily using nitrous oxide/oxygen inhalation and local anesthesia. Prereq: 2110 and 2300.			

## 122 Dental Hygiene

**3150 Periodontal Therapy** U 2

Instruction in initial and supportive therapy for periodontally compromised patients in dental practice settings, including discussion of adjunctive therapies and periodontal surgeries. Prereq: 2110, 2150, and 2300.

**3160 Pharmacology for Dental Hygiene** U 1

Introduction to pharmacology and its application to clinical dental hygiene. Topics include pharmacokinetics, pharmacodynamics, recognition of drug classes in patient's health history and how the pharmacologic regimen must be considered before dental treatment is rendered. Prereq: 2300.

**3170 Dental Materials** U 1

Instruction in the biologic, chemical and physical characteristics and properties of various biomaterials encountered in the practice of dental hygiene and dentistry. Prereq: 2110.

**3180 Management of Medical Emergencies** U 1

Introduces students to algorithms designed for the management of common medical emergencies in the dental office. This course includes a review of the signs and symptoms often seen in seven different medical emergencies. The medical emergencies covered in this course are: airway obstruction, syncope, hypoglycemia, seizure, acute asthma attack, angina, and anaphylaxis. Prereq: 2310, 3110, and 3230.

**3210 Community Oral Health** U 2

Introduction to the knowledge, skills and behaviors necessary to promote oral health through organized community efforts. Prereq: Admission to DHY major.

**3230 Care for Patients with Special Needs** U 2

Instruction to identify patients with special needs and development of skills and techniques to effectively treat this population. Prereq: 2240 and 2300.

**3320 Dental Hygiene Clinic II** U 3

Ongoing clinical experience with emphasis on development of fundamental clinical skills. Prereq: A grade of C- or above in 2310, 3120, 3140, and 3150, and recommendation of faculty.

**3330 Dental Hygiene Clinic III** U 4

A continuation of clinical patient care with emphasis on time management. Patient care parameters are expanded. Prereq: A grade of C- or above in 3320, and recommendation of faculty.

**3400 Research Application and Analysis** U 2

Continuation of 2400. Application of scientific inquiry, research methodology, basic statistical concepts, and interpretation of data analyses. Presentations of community dentistry and research poster projects will be completed. Prereq: 2400. Not open to students with credit for 3410.

**3410 Research Methods and Interpretation** U 4

Introduction to the process of scientific inquiry, research methodology, basic statistical concepts and interpretation of data analyses. Research methodology from a dental perspective will be introduced. Prereq: Admission to DHY or BDCP major.

**4193 Individual Studies in Dental Hygiene** U 1 - 3

Advanced studies in any relevant area of dental hygiene. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.

**4194 Group Studies in Dental Hygiene** U 1 - 3

Group studies in selected topics in dental hygiene. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.

**4210 Integrated Dental Hygiene Science I** U 1

Integration and review of all areas of dental hygiene related to dental hygiene practice. Application of analytical skills to case analysis. Prereq: Sr standing in DentHyg. This course is graded S/U.

**4220 Integrated Dental Hygiene Science II** U 1

Continuation of 4210. Prereq: 4210. This course is graded S/U.

**4240 Practice Management** U 2

Introduction to the economic and employment issues which impact dental hygiene practices and management skills to foster current standards of dental hygiene care. Prereq: Sr standing in DHY.

**4250 Contemporary Concepts in the Practice of Dental Hygiene Seminar** U 1

DH 4250 is designed for students to identify and explore current issues related to opportunities and demands of the dental hygiene profession. The goal of DH 4250 is to prepare students to transition from dental hygiene school to registered dental hygienists and plan for their future careers within a potentially changing American health care system and ever evolving profession. Prereq: 2220 and Sr standing in dental hygiene.

**4340 Dental Hygiene Clinic IV** U 4

A final clinical experience incorporating all previously acquired knowledge, techniques, procedures, and evaluation of results of dental hygiene therapy with emphasis on time management. Prereq: A grade of C- or above in 3330, and recommendation of faculty.

**4420 Current Concepts in Dental Hygiene** U 2

Instruction in the significant aspects of dental hygiene practice within the context of dentistry and health care. Prereq: 3400 or 3410.

**4430 Dental Hygiene Practicum** U 1 - 4

Supervised practice outside the traditional clinic in a setting similar to one in which the dental hygiene student may practice, teach, or conduct research upon graduation. Prereq: Sr standing in DHY or BDCP major. Repeatable to a maximum of 4 or hrs or 4 completions. This course is graded S/U.

**4530 Oral Health Behavior Management** U 2

Instruction in advanced skills for dental hygienists to help patients achieve good oral health, with emphasis on clinical application and evaluation. Prereq: Admission to BDCP major.

**4620 Dental Hygiene Education I** U 3

Introduction to teaching in the dental hygiene setting. This course is designed to provide the future dental hygiene educator with insight into the fundamental principles of learning and teaching. This course highlights the behaviors, attitudes, and interactions of effective and inspiring teachers. Prereq: Admission to UDHY major.

**4630 Dental Hygiene Education II** U 3

Continuation of 4620. This course is designed to provide the future dental hygiene educator with an appreciation of foundations of teaching and learning, essential teaching skills, importance of communication in teaching, instructional planning, instructional strategies/activities, assessment fundamentals, methods of assessment, teaching in higher education, and personal philosophy of teaching. Prereq: 4620.

**4725 Expanded Functions for the Dental Auxiliary Pre-clinic** U 4

Introduction to theory and technical procedures for the expanded functions dental auxiliary in four-handed dentistry and restoring cavity preparations with amalgam alloy and filled resins. Prereq: A grade of C- or above in 2310.

**4740 Expanded Functions for the Dental Auxiliary Clinic I** U 1 - 3

Clinical application of expanded function duties permitted by law. Prereq: A grade of C- or above in 4725.

**4750 Expanded Functions for the Dental Auxiliary Clinic II** U 1

Clinical application of expanded function duties permitted by law. Prereq: A grade of C- or above in 4740.

**4760 Expanded Functions for the Dental Auxiliary Seminar** U 1

Instruction in current expanded functions, practice management techniques, and current law in Ohio including practical experiences in preparation for Ohio Expanded Functions Qualifying Examination. Prereq: A grade of C- or above in 4740.

**6000 Educational Policy and Management in Dental Hygiene** G 3

Designed to study the concept of policy as it relates to dental hygiene educational institutions and their governance and practices while providing knowledge and skills in basic management and administration. Prereq: Admission to Master's in Dental Hygiene, or permission of instructor.

**6100 Dental Hygiene Educational Theory and Methods** G 3

The study of theory, principles and research related to the faculty role in active teaching and learning, critical thinking, and development of course alignment in dental hygiene education. Prereq: Admission to Master's in Dental Hygiene, or permission of instructor.

**6200 Contemporary Issues in Dental Hygiene** G 3

Examines current issues which affect the overall dental profession with a strong focus on dental hygiene issues and the delivery of dental health care. It explores current and innovative strategies to make changes in dental hygiene to improve oral and overall health care. Prereq: Admission to Master's in Dental Hygiene, or permission of instructor.

**6400 Introduction to Dental Research Designs** G 3

Designed to present conception and technical problems in the development and implementation of clinical, behavioral and basic science research projects related to dentistry. Prereq: Admission to Master's in Dental Hygiene, or permission of instructor.

**6450 Statistical Analysis and its Application to Dental Hygiene** G 3

Designed to provide a conceptual foundation of statistics related to basic, clinical and behavioral dental science. Prereq: 6400, and admission to Master's in Dental Hygiene.

**7100 Instructional Strategies** G 3

Explores modern educational methodology and course design in the teaching of dental hygiene students including technological advances in online and traditional teaching. Prereq: 6100, or permission of instructor.

<b>7191</b>	<b>Dental Hygiene Internship</b>	<b>G</b>	<b>1 - 6</b>
Supervised practical experience in the day to day operation of a dental hygiene program. Prereq: 6100, 7100, and 7200 for a teaching internship; or 6000 and 7300 for an administrative internship; and admission to the MDH program, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>7193</b>	<b>Individual Studies in Dental Hygiene</b>	<b>G</b>	<b>1 - 6</b>
Provides an opportunity for students to pursue individual studies in dental hygiene topics not otherwise offered. Prereq: Admission to MDH program, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>7200</b>	<b>Clinical/Laboratory Instruction and Administration</b>	<b>G</b>	<b>3</b>
Designed to study the theory and practice of laboratory, pre-clinical, and clinical dental hygiene instruction with an emphasis on psychomotor skill development, student mentoring, and evaluation. Prereq: Admission to MDH program, or permission of instructor.			
<b>7300</b>	<b>Leadership and Administration in Dental Hygiene Education</b>	<b>G</b>	<b>3</b>
Designed to study leadership theories and program administration unique to dental hygiene educational programs including accreditation, human resources, faculty evaluation, budgeting, administration and outcomes assessment. Introduces the administrative structure and duties required to become a faculty member or program director and focuses on leadership in the profession. Prereq: Admission to Master's in Dental Hygiene, or permission of instructor.			
<b>7999</b>	<b>Research: Thesis</b>	<b>G</b>	<b>1 - 6</b>
Provides graduate students with the opportunity to develop and conduct basic and applied Dental Hygiene research required for the completion of a master's thesis. Prereq: Admission to MDH program, and permission of thesis advisor. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			

## Dentistry

<b>6200</b>	<b>Molecular and Cellular Biochemistry</b>	<b>D</b>	<b>5</b>
Basic principles of biochemistry, molecular and cellular biology with special emphasis on biochemical processes important in dentistry. Prereq: Not open to students with credit for 606 and 607.			
<b>6262</b>	<b>Communication and Ethics in Dentistry</b>	<b>D</b>	<b>2</b>
Communication basics with an emphasis on communication with patients. Also includes an introduction to cultural competence and ethics in dentistry.			
<b>6400</b>	<b>Microbiology and Immunology</b>	<b>D</b>	<b>4</b>
Major components of the human immune system, and the immune response to medically important pathogens including bacteria, viruses, fungi and parasites.			
<b>6415</b>	<b>Clinical Evaluative Sciences I</b>	<b>D</b>	<b>1</b>
Evidence Based Dentistry. Repeatable to a maximum of 2 cr hrs.			
<b>6416</b>	<b>Introduction to Clinical Dentistry I</b>	<b>D</b>	<b>2</b>
Introduction to prevention of oral disease, oral examination and modeling, patient evaluation, and use of the dental operator. May include observation or assistance with clinical patient care, simulations, and laboratory exercises. Prereq: Not open to students with credit for 415.02, 416, and 427. This course is graded S/U.			
<b>6417</b>	<b>Oral Anatomy</b>	<b>D</b>	<b>3</b>
Dental anatomy and anatomy of the head and neck.			
<b>6423</b>	<b>Clinical Evaluative Sciences II</b>	<b>D</b>	<b>1</b>
Evaluative sciences as they relate to the practice of dentistry including measurement and description of data and research study design.			
<b>6427</b>	<b>Introduction to Clinical Dentistry II</b>	<b>D</b>	<b>2</b>
Introduction to periodontal instrumentation, charting, ultrasonic scaling and recall. Topics also include: Rubber dam, coronal polishing and composite typodont exercise. This course is graded S/U.			
<b>6435.01</b>	<b>Fixed I Lecture</b>	<b>D</b>	<b>1</b>
This course provides information regarding how to prepare ivory teeth (molars and premolars) for a complete veneer crown cast gold restoration. Repeatable to a maximum of 3 cr hrs.			
<b>6435.02</b>	<b>Fixed I Laboratory</b>	<b>D</b>	<b>1</b>
This course provides experience in preparing ivory teeth (molars and premolars) for a complete veneer crown cast gold restoration.			
<b>6436.01</b>	<b>Fixed Dentistry II Lecture</b>	<b>D</b>	<b>1</b>
Students will learn to restore anterior teeth with crowns, applying scientific basis on principals of tooth preparations, provisional restorations, and material selections. The principals of esthetics will be introduced and applied in provisional restorations.			

<b>6436.02</b>	<b>Fixed Restorative Dentistry II Laboratory</b>	<b>D</b>	<b>1</b>
Students will learn to restore anterior teeth with crowns, applying scientific basis on principals of tooth preparations, provisional restorations, and material selections. This laboratory course is taught in conjunction with 6436.01.			
<b>6437.01</b>	<b>Fixed Restorative Dentistry III</b>	<b>D</b>	<b>1</b>
Students will learn to restore anterior partial edentulism with fixed dental prosthesis. Topics include: application of scientific basis to indications and contraindications, principals of tooth preparations, provisional restorations, and material selections and esthetics. Repeatable to a maximum of 6 ch hrs.			
<b>6437.02</b>	<b>Fixed Restorative Dentistry III Laboratory</b>	<b>D</b>	<b>1</b>
Students will learn to restore anterior partial edentulism with fixed dental prosthesis. Topics include: application of scientific basis to indications and contraindications, principals of tooth preparations, provisional restorations, and material selections and esthetics. The emphasis is on associated laboratory procedures. Repeatable to a maximum of 3 cr hrs.			
<b>6438.01</b>	<b>Fixed IV Lecture</b>	<b>D</b>	<b>1</b>
Clinical and theoretical considerations of tooth preparation design for fixed partial dentures and metal ceramics, the importance of diagnostic waxing, fabrication of direct provisional restorations, theoretical considerations in framework design, and the properties of materials used in the fabrication of metal-ceramic restorations. Repeatable to a maximum of 3 cr hrs.			
<b>6438.02</b>	<b>Fixed IV Laboratory</b>	<b>D</b>	<b>1</b>
Clinical and theoretical considerations of tooth preparation design for fixed partial dentures and metal ceramics laboratory experiences. Repeatable to a maximum of 3 cr hrs.			
<b>6482</b>	<b>Removable Complete Prosthodontics I</b>	<b>D</b>	<b>2</b>
Overview of complete removable prosthodontics for the general dentist. Includes a laboratory component.			
<b>6489</b>	<b>Removable Partial Prosthodontics I</b>	<b>D</b>	<b>2</b>
Introduction to removable partial prosthodontics. Survey edentulous casts and design removable partial dentures; prepare mouth for insertion. Includes a laboratory component.			
<b>6490</b>	<b>Advanced Principles in Cardiology</b>	<b>D</b>	<b>1</b>
Advanced Principles in Cardiology is a one semester, one credit elective course designed to help third year DDS program students who are interested in specialty programs (especially anesthesia and OMFS) gain a more in-depth understanding of the functions of the human heart. It will specifically focus on advanced principles related to cardiac anatomy, physiology, and pathology. Prereq: Enrollment in the third academic year of the DDS program, and permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>6491</b>	<b>Advanced Principles in Pulmonology</b>	<b>D</b>	<b>1</b>
In-depth understanding of the functions of the human respiratory system. Specific focus on advanced principles related to pulmonary anatomy, physiology, and pathology. Prereq: Enrollment as a Dentistry Year 3 student. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>6500</b>	<b>Histology, Development and Cell Biology of Oral Tissues</b>	<b>D</b>	<b>3</b>
Light microscopic and ultrastructural organization of adult and developing orofacial tissues including their underlying cellular and molecular basis.			
<b>6505</b>	<b>Oral Surgery I</b>	<b>D</b>	<b>1</b>
Introduction to principles of patient evaluation and management for common dento-alveolar surgical procedures.			
<b>6516</b>	<b>Oral Microbiology and Cariology</b>	<b>D</b>	<b>1½</b>
Epidemiology of dental caries and periodontitis. Oral microbiology of the disease process and relationship to systemic disease. Topics also include: Oral infections, sterilization and asepsis, and caries assessment, diagnosis, and fluoride therapy.			
<b>6530</b>	<b>Post and Core Restoration of Endodontically Treated Teeth</b>	<b>D</b>	<b>½</b>
Restoration of endodontically treated teeth. Repeatable to a maximum of 1.5 cr hrs.			
<b>6533</b>	<b>Occlusion</b>	<b>D</b>	<b>3</b>
This course covers the impact of tooth form on function. Students will learn how to model a patient's dentition in the laboratory and appropriately relate it to the TMJ. This course will provide students with an understanding of the dynamics of mandibular movements, articulator design, occlusal schemes, anatomy of teeth.			
<b>6533.01</b>	<b>Occlusion</b>	<b>D</b>	<b>2</b>
The affect of tooth form on function. Repeatable to a maximum of 6 cr hrs.			
<b>6533.02</b>	<b>Occlusion Laboratory</b>	<b>D</b>	<b>1</b>
The goal of this course is to enable the student to explore the functional and aesthetic form of human dentition, and to more fully comprehend and visualize mandibular movements as critical elements in providing optimal restorative dental treatment. This is laboratory course is taken in conjunction with the didactic course 6533.01. Repeatable to a maximum of 3 cr hrs.			

## 124 Dentistry

### 6534.01 Operative Dentistry IV D 1

Diagnosis and treatment planning of intra-coronal restorations and facial veneers including principles of tooth preparation, fabrication of a provisional restoration and cementation of the final restoration. Additional topics include: CAD/CAM for dental restorations and treatment planning for diastemas.  
Repeatable to a maximum of 3 cr hrs.

### 6534.02 Operative Dentistry IV Laboratory D 1

This laboratory course provides students with skills related to providing intra-coronal restorations and facial veneers. Laboratory exercises include tooth preparation, fabrication of a provisional and final cementation of the permanent restoration.  
Repeatable to a maximum of 3 cr hrs.

### 6537 Fixed Restorative Dentistry V D 1

Restorative treatment of the endodontically treated tooth and Fixed Prosthodontics competency exam. Includes a laboratory component.

### 6540.01 Operative Dentistry I D 2

Introduction to the principles of conservative tooth preparations, characteristics of dental amalgam and its use in the restoration of posterior teeth and class V lesions. Students will learn how to prepare different types of cavities. The course also include information related to the caries process, techniques to control lesions, and restorative dentistry materials.  
Repeatable to a maximum of 6 cr hrs.

### 6540.02 Operative Dentistry I Laboratory D 1

Introduction to principles of conservative tooth preparations, acquiring the skills to prepare different types of cavities

### 6541.01 Operative II Lecture D 1

This course provides students knowledge in the use of composite, resin-modified glass ionomer, and amalgam to restore teeth.  
Repeatable to a maximum of 3 cr hrs.

### 6541.02 Operative II Laboratory D 1

This course provides students experience in the use of composite, resin-modified glass ionomer, and amalgam to restore teeth.  
Repeatable to a maximum of 3 cr hrs.

### 6542 Operative Dentistry III D 2

Students will review principals of amalgam preparation and restoration, bases and liners, and complex amalgam preparations and restorations. Dentistry 6542 will include foundation restorations. Students will also be introduced to Class III composite and amalgam preparations and restorations, Class IV composite preparations and restoration technique.  
Repeatable to a maximum of 6 cr hrs.

### 6542.01 Operative Dentistry III Lecture D 1

Class III composite preparations and restorations, Class IV composite preparations and restoration technique, and extensive amalgam preparations and restorations. 6542.01 is taught in conjunction with 6542.02 and is the didactic portion of the course.

### 6542.02 Operative Dentistry III Laboratory D 1

Class III composite preparations and restorations, Class IV composite preparations and restoration technique, and extensive amalgam preparations and restorations. 6542.02 is taught in conjunction with 6542.01 and is the laboratory portion of the course.

### 6543 Oral Radiology II D 2

Advanced imaging techniques including panoramic imaging and CBCT imaging.  
Repeatable to a maximum of 6 cr hrs.

### 6544 Internal Medicine for Dentistry D 2

Review of common medical conditions and implications for dental treatment. Attention is placed on major organ pathophysiology, clinical medicine & pharmacologic management. Emergency medicine is also discussed.

### 6545 Oral Radiology D 1

Introduction of basic radiology concepts to DDS program students. Course topics: formation, x-ray interactions, intraoral anatomy, image exposure and technique, effects of radiation including radiation safety and protection.

### 6546.01 Operative Dentistry V Lecture D 1

Principals of composite and amalgam preparation and restoration, bases and liners, and complex amalgam preparations and restorations, foundation restorations, fabricating veneer temporaries, uses of lasers in restorative dentistry including troubleshooting for impressions, and other advanced restorative procedures. This course is taken concurrently with the laboratory course.  
Repeatable to a maximum of 3 cr hrs.

### 6546.02 Operative Dentistry V Laboratory D 1

The primary focus of Dent 6546.02 is the Dent II pre-clinical operative competency exam. The exam consists of eight operative dentistry procedures. The procedures are a combination of amalgam preparations ideal and complex, composite preparations, amalgam restorations, and composite restorations. Dentistry 6546.02 is taken concurrently with Dentistry 6546.01.  
Repeatable to a maximum of 3 cr hrs.

### 6551 Pediatric Dentistry II D ½

Introduction to basic restorative dentistry for the primary and transitional dentition.

### 6564 Periodontology I D 3

Introduction to periodontal disease and diagnosis.

### 6565 Periodontology II D 4

Periodontal disease prevention and therapy using an evidence-based patient management approach. Includes rationale for non-surgical and surgical therapy. Lab and clinic exercises in subgingival instrumentation.

### 6567 Endodontics I D 1½

Overview of basic endodontic treatment, from access to the obturation technique. General terminology, basic instrument description, rationale for treatment. Includes laboratory component.

### 6569 Endodontics II D 1

Topics related to endodontic treatment including: diagnosis, emergency treatment, traumatic injuries, internal bleaching, vital pulp therapy, relationship to the periodontium, surgery, and treatment outcomes.

### 6571 Pharmacology I D 4

Introduction to the mechanism of action and side effects of pharmacologic agents.

### 6579 Local Anesthesia D 1

Techniques of intraoral local anesthetic administration with emphasis on predicting and preventing complications. Includes discussion of related basic science principles.

### 6587 Removable Partial Prosthodontics II D 1

Treatment of patients with a complete maxillary denture and a mandibular distal extension removable partial denture. Includes a laboratory component.

### 6600 Human Physiology D 5

Human physiology course for dental students. Overview of physiological systems including nerve, muscle, cardiovascular, respiration, endocrine and renal. Oral physiology topics including kinesthesia, mastication, swallowing and pain.

### 6601 Physiology I D 2

A course covering all areas of human physiology, plus topics related to oral physiology. The course begins in the summer semester and a second course will continue in the fall semester. An emphasis is placed on the integration of principals of basic science to clinical science by providing case histories and other material from the clinical literature.  
Prereq: Enrollment in Pre-doctoral Dental program. Repeatable to a maximum of 6 cr hrs. This course is progress graded.

### 6602 Physiology II D 3½

A course covering all areas of human physiology, plus topics related to oral physiology. The course begins in the summer semester and will continue in the fall semester. An emphasis is placed on the integration of principals of basic science to clinical science by providing case histories and other material from the clinical literature.  
Prereq: Enrollment in the DDS program. Repeatable to a maximum of 10.5 cr hrs.

### 6612 Pharmacology II D 2

Applied pharmacology including the safe prescribing of drugs used in general dental practice. Includes principles of pharmacology and interaction concerns.

### 6623 Geriatrics and Patients with Special Health Needs D 2

Concerns associated with the provision of oral health care to Geriatric and Special Needs patients. Topics include: patient mobility, psychosocial and socioeconomic issues, medical considerations, and communication.

### 6625 Practice Management I D 1

Basic concepts in personal and business finance and business management. Topics include future trends in dentistry, economics, investments, and concepts in risk management and regulatory agency oversight.

### 6626 Practice Management II D 1

Career opportunities within Dentistry. Evaluation of Dental practice types relative to business structure, organization and productivity analysis.

### 6627 Practice Management III D 1

Topics include legal issues affecting Dental practice, peer review process, liability insurance, marketing, associateships, and evaluating and purchasing a Dental practice.

### 6629 Dental Materials D 1

Evaluation and effective use of dental materials by the general dentist. Topics also include requirements of ideal materials and procedures for working with dental laboratories.  
Repeatable to a maximum of 2 cr hrs.

### 6630 Diagnosis and Treatment Planning for Patients with Complex Restorative Needs D 2

Introduction to procedures for collecting and evaluating information, particularly as related to occlusion, that enable proper diagnose and treatment of partially edentulous patients with complex restorative needs. Includes a laboratory component.

### 6631 Restorative and Prosthetic Dentistry Clinical Lecture Series I D ½

Advanced topics related to clinical guidelines, prevention of recurrent caries under fixed restorations, fluid control, soft tissue management, tooth isolation and pulpal protection.

<b>6632</b>	<b>Restorative and Prosthetic Dentistry Clinical Lecture Series II</b>	<b>D</b>	<b>1</b>
Advanced topics related to treatment planning, dental materials, articulators and impressions.			
<b>6633</b>	<b>Restorative and Prosthetic Dentistry Clinical Lecture Series III</b>	<b>D</b>	<b>1</b>
Advanced topics related to; esthetics, casting delivery, removable partial denture attachments, classification of endentulism, treating difficult denture patients and maxillofacial prostheses.			
<b>6638</b>	<b>Implant Dentistry I</b>	<b>D</b>	<b>1½</b>
Introduction to implant dentistry including discussion of treatment planning dental implants.			
<b>6645</b>	<b>Oral Pathology I</b>	<b>D</b>	<b>2</b>
Oral and maxillofacial pathologic conditions. Topics include dental and developmental anomalies, mucocutaneous and salivary gland disorders, odontogenic cysts and tumors and HIV infection.			
<b>6648</b>	<b>Oral Pathology II</b>	<b>D</b>	<b>3</b>
Oral and maxillofacial pathologic conditions. Topics include inflammatory and reactive conditions, epithelial and melanocytic pathology, Mesenchymal hard and soft tissue neoplasms, hematologic disorders and oral manifestations of systemic disease.			
<b>6651</b>	<b>Pediatric Dentistry I</b>	<b>D</b>	<b>2</b>
Overview of Pediatric Dentistry for the general dentist. Content includes treatment of infants, children, adolescents and those patients with special medical needs. Prereq: Enrollment in DDS program. Repeatable to a maximum of 6 cr hrs.			
<b>6654</b>	<b>Orthodontics Introduction</b>	<b>D</b>	<b>2</b>
This course is intended to provide the general practitioner with knowledge and skill to evaluate child, adolescent and adult patients' orthodontic problems. Repeatable to a maximum of 6 cr hrs.			
<b>6655</b>	<b>General Pathology</b>	<b>D</b>	<b>3</b>
Overview of human disease and the mechanisms associated with genetic, acquired, reactive and neoplastic conditions. Disease epidemiology, pathogenesis, diagnosis, treatment, prognosis and prevention are discussed.			
<b>6656</b>	<b>Orthodontics I</b>	<b>D</b>	<b>4</b>
Introduction to orthodontic diagnosis and treatment planning for general dentists.			
<b>6657</b>	<b>Orthodontics I</b>	<b>D</b>	<b>2</b>
Orthodontics for general dental practitioners. Repeatable to a maximum of 6 cr hrs.			
<b>6658</b>	<b>Clinical Orthodontics I</b>	<b>D</b>	<b>½</b>
This course establishes the skills required for the clinical application of the principles of facial and dental growth and development, and orthodontic diagnosis. Students will develop the skills that they will need to address the orthodontic needs of their patients and to recognize when orthodontic treatment can add to the results of their restorative and periodontal treatment. Repeatable to a maximum of 1.5 cr hrs.			
<b>6659</b>	<b>Orthodontics II</b>	<b>D</b>	<b>1</b>
Advanced topics in orthodontics for the general dentist including: growth and development and treatment evaluation.			
<b>6684</b>	<b>Removable Complete Prosthodontics II</b>	<b>D</b>	<b>1</b>
Finishing and polishing a complete denture, laboratory remount, occlusal equilibration, denture repair and relining. Includes a laboratory component.			
<b>6690</b>	<b>Introduction to Clinical Dentistry III</b>	<b>D</b>	<b>2</b>
Introduction to interim partial dentures and border molding, dental photography, carries risk assessment, removal of large restorations and head and neck examination. Includes observation or assistance with clinical patient care. This course is graded S/U.			
<b>6691</b>	<b>Introduction to Clinical Dentistry IV</b>	<b>D</b>	<b>2</b>
Overview of clinic patient records. Exercise in local anesthesia administration, use of posterior rubber dam and dental charting. Also includes observation or assistance with clinical patient care. This course is graded S/U.			
<b>6693</b>	<b>Individual Studies in Dentistry I</b>	<b>D</b>	<b>½ - 12</b>
Individual studies in any of the recognized fields of dentistry. Repeatable to a maximum of 36 cr hrs or 6 completions. This course is graded S/U.			
<b>6704</b>	<b>Oral Surgery II</b>	<b>D</b>	<b>1</b>
Overview of advanced oral surgery practice.			
<b>6744</b>	<b>Oral Pathology III</b>	<b>D</b>	<b>1</b>
Case-based study of oral pathologic conditions including documentation, development of the differential diagnosis, strategies to establish the diagnosis and patient management.			
<b>7012.01</b>	<b>Neuroscience Laboratory</b>	<b>G D</b>	<b>1</b>
Laboratory component of Dentistry 7012 in which students will learn anatomy of the human brain. Prereq: Permission of instructor. Cross-listed in NeuroSc 7200.01.			

<b>7012.02</b>	<b>Experimental Neuroscience Lab</b>	<b>G D</b>	<b>1</b>
Laboratory component of Dentistry 7012 in which students will learn the anatomy of the rodent brain using experimental techniques. Prereq: Permission of instructor. Cross-listed in NeuroSc 7200.02.			
<b>7012.03</b>	<b>Foundations of Neuroscience II</b>	<b>G D</b>	<b>6</b>
Discusses the organization of selected systems in the nervous system including motor, sensory, autonomic, and higher cognitive centers. Course will cover anatomical, functional, and behavioral concepts. Prereq: Permission of instructor. Cross-listed in NeuroSc 7002.			
<b>7400</b>	<b>Advanced Pediatric Dentistry</b>	<b>D</b>	<b>1</b>
Advanced clinical experiences and background in Pediatric Dentistry for general practitioners. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7500</b>	<b>Community Dentistry I</b>	<b>D</b>	<b>1½</b>
General dental practice experience at external sites. Prereq: Not open to students with credit for 500, 501, 502, or 503.			
<b>7501</b>	<b>Community Dentistry II</b>	<b>D</b>	<b>2</b>
General dental practice experience at external sites. Prereq: Not open to students with credit for 500, 501, 502, or 503.			
<b>7502</b>	<b>Community Dentistry III</b>	<b>D</b>	<b>2</b>
General dental practice experience at external sites. Prereq: Not open to students with credit for 500, 501, 502, or 503.			
<b>7616</b>	<b>Primary Care I</b>	<b>D</b>	<b>1½</b>
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. Prereq: Not open to students with credit for 616, 617, 618, or 619. This course is graded S/U.			
<b>7617.01</b>	<b>Primary Care II</b>	<b>D</b>	<b>4</b>
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is graded S/U.			
<b>7617.02</b>	<b>Primary Care II</b>	<b>D</b>	<b>4</b>
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. Prereq: Not open to students with credit for 616, 617, 618, or 619. Repeatable to a maximum of 8 cr hrs. This course is progress graded.			
<b>7618.01</b>	<b>Primary Care III</b>	<b>D</b>	<b>4</b>
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is progress graded (S/U).			
<b>7618.02</b>	<b>Primary Care III</b>	<b>D</b>	<b>4</b>
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is progress graded.			
<b>7652</b>	<b>Clinical Pediatric Dentistry I</b>	<b>D</b>	<b>1</b>
Clinical experience treating child and adolescent patients. Prereq: Not open to students with credit for 652.02. This course is graded S/U.			
<b>7658</b>	<b>Clinical Orthodontics</b>	<b>D</b>	<b>1</b>
Clinical application of the principals of orthodontic growth and development, and orthodontic treatment. Prereq: Not open to students with credit for 658.			
<b>7669</b>	<b>Clinical Endodontics I</b>	<b>D</b>	<b>1</b>
Clinical experience in performing root canal treatment on uncomplicated permanent teeth. Also exposure to treatment modalities necessary in more complicated Endodontic cases. Prereq: Not open to students with credit for 668. This course is graded S/U.			
<b>7676</b>	<b>Clinical Periodontology</b>	<b>D</b>	<b>1</b>
Students participate in treatment of patients with periodontal needs.			
<b>7693</b>	<b>Individual Studies in Dentistry II</b>	<b>D</b>	<b>½ - 12</b>
Individual studies in any of the recognized fields of dentistry. Repeatable to a maximum of 36 cr hrs or 6 completions.			
<b>7701</b>	<b>Clinical Oral Surgery I</b>	<b>D</b>	<b>4</b>
Introductory clinical experience to the primary principles of patient evaluation and management for common dento-alveolar surgical procedures. Prereq: Not open to students with credit for 701. This course is graded S/U.			
<b>7702</b>	<b>Clinical Oral Surgery II</b>	<b>D</b>	<b>½</b>
Patient evaluation and management for common dento-alveolar surgical procedures. Includes an experience in hospital dentistry. Prereq: Not open to students with credit for 704. This course is graded S/U.			

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<b>7708</b>	<b>Clinical Pediatric Dentistry II</b>	<b>D</b>	<b>1</b>	Experience treating child and adolescent patients in a clinic environment. Also includes experience in a hospital setting and exposure to complicated Pediatric Dentistry and Special Needs cases. Includes competency examinations. Prereq: Not open to students with credit for 708.03. This course is graded S/U.	<b>8000.06</b>	<b>Endodontics</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7716.01</b>	<b>Primary Care IV</b>	<b>D</b>	<b>3</b>	Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is graded S/U.	<b>8000.07</b>	<b>Pediatric Dentistry I Graduate Pediatric Dentistry Clinic</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7716.02</b>	<b>Primary Care IV</b>	<b>D</b>	<b>3</b>	Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is progress graded.	<b>8000.15</b>	<b>Oral Pathology II Surgical Pathology</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7718.01</b>	<b>Primary Care V</b>	<b>D</b>	<b>3</b>	Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is graded S/U.	<b>8000.17</b>	<b>Pediatric Dentistry II Medical Clinical Rotations</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7718.02</b>	<b>Primary Care V</b>	<b>D</b>	<b>4</b>	Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. Prereq: Not open to students with credit for 716, 717, 718, or 719. This course is progress graded.	<b>8000.22</b>	<b>Orthodontics III Craniofacial Anomalies Clinic</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7719.01</b>	<b>Primary Care VI</b>	<b>D</b>	<b>3</b>	Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is graded S/U.	<b>8000.24</b>	<b>Prosthodontics III Maxillofacial Clinic</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7719.02</b>	<b>Primary Care VI</b>	<b>D</b>	<b>4</b>	Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. May include competency examinations and special projects. This course is progress graded.	<b>8000.27</b>	<b>Pediatric Dentistry III Anesthesia Rotation</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.
<b>7746</b>	<b>Clinical Oral Radiology Introductory</b>	<b>D</b>	<b>½</b>	Introductory clinical experience in Oral Radiology. Includes selection, and evaluation of radiographs in addition to techniques for obtaining appropriate images. This course is graded S/U.	<b>8001.01</b>	<b>Anesthesia Literature Review</b>	<b>G</b>	<b>½</b>	The course will explore recent advances and opinions in anesthesiology and provide an understanding of key concepts of anesthesiology and approaches to clinical management. The course will consist of a monthly topic and at least two recent peer reviewed articles that will be presented to the class for discussion. One member of the class will develop and present the lecture for each class. Repeatable to a maximum of 3.5 cr hrs.
<b>7747</b>	<b>Clinical Oral Radiology Intermediate</b>	<b>D</b>	<b>½</b>	Intermediate level clinical experience in Oral Radiology. Includes selection, and evaluation of radiographs in addition to techniques for obtaining appropriate images. This course is graded S/U.	<b>8001.02</b>	<b>Orthodontics</b>	<b>G</b>	<b>½ - 10</b>	Review of literature. Repeatable.
<b>7769</b>	<b>Clinical Endodontics II</b>	<b>D</b>	<b>1</b>	Clinical experience in performing root canal treatment on uncomplicated permanent teeth. Also exposure to treatment modalities necessary in more complicated Endodontic cases.	<b>8001.03</b>	<b>Periodontics</b>	<b>G</b>	<b>½ - 10</b>	Review of literature. Repeatable.
<b>7776</b>	<b>Periodontology Clinical Competencies</b>	<b>D</b>	<b>1</b>	Competency examinations related to Periodontology. Repeatable to a maximum of 3 cr hrs.	<b>8001.04</b>	<b>Prosthodontics I Removable Prosthodontics</b>	<b>G</b>	<b>½ - 10</b>	Review of literature. Repeatable.
<b>7920</b>	<b>Oral Biology Seminar</b>	<b>G</b>	<b>½ - 2</b>	Student presentations of recent research findings, both original and from the literature. Repeatable to a maximum of 40 cr hrs or 20 completions.	<b>8001.05</b>	<b>Oral Pathology</b>	<b>G</b>	<b>½ - 10</b>	Review of literature. Repeatable. This course is graded S/U.
<b>7921</b>	<b>Oral Biology Journal Club</b>	<b>G</b>	<b>1 - 2</b>	Weekly, one student will present a current paper from a top tier journal that reports important findings related to Oral Biology. Prior to class, all students will read the paper, write a brief summary, summarize the experimental design and statistical approach, and compose two questions for class discussion. Grading is based on presentation quality, completion of pre-work, and participation. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.	<b>8001.14</b>	<b>Prosthodontics II Fixed Prosthodontics</b>	<b>G</b>	<b>½ - 10</b>	Review of literature. Repeatable.
<b>7993</b>	<b>Individual Studies in Advanced Dentistry</b>	<b>G</b>	<b>½ - 12</b>	Advanced individual studies in any of the recognized fields of dentistry. Repeatable. This course is graded S/U.	<b>8001.24</b>	<b>Prosthodontics III Dental Implants</b>	<b>G</b>	<b>½ - 10</b>	Review of literature. Repeatable.
<b>8000.02</b>	<b>Orthodontics/Graduate Orthodontics Clinic</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable.	<b>8002.01</b>	<b>Anesthesia Grand Rounds</b>	<b>G</b>	<b>½ - 1</b>	Discussion of clinical cases. The course is designed to teach advanced principles of hospital anesthesia to dental anesthesia residents and provide monthly morbidity and mortality case reports. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.
<b>8000.03</b>	<b>Periodontics</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable.	<b>8002.02</b>	<b>Orthodontics I Case Seminars</b>	<b>G</b>	<b>½ - 10</b>	Discussion of clinical cases. Repeatable.
<b>8000.04</b>	<b>Prosthodontics/Graduate Prosthodontics Clinic</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable.	<b>8002.03</b>	<b>Periodontics I Faculty Presentations</b>	<b>G</b>	<b>½ - 10</b>	Discussion of clinical cases. Repeatable.
<b>8000.05</b>	<b>Oral Pathology I Clinical Assisting</b>	<b>G</b>	<b>½ - 10</b>	Broad exposure to advanced clinical principles and practices. Repeatable. This course is graded S/U.	<b>8002.05</b>	<b>Oral Pathology</b>	<b>G</b>	<b>½ - 10</b>	Discussion of clinical cases. Repeatable. This course is graded S/U.
					<b>8002.06</b>	<b>Endodontics</b>	<b>G</b>	<b>½ - 10</b>	Discussion of clinical cases. Repeatable.
					<b>8002.07</b>	<b>Pediatric Dentistry I Contemporary Issues</b>	<b>G</b>	<b>½ - 10</b>	Discussion of clinical cases. Repeatable. This course is graded S/U.



<b>8002.12</b>	<b>Orthodontics II Case Presentations</b>	<b>G</b>	<b>½ - 10</b>
Discussion of clinical cases. Repeatable. This course is graded S/U.			
<b>8002.13</b>	<b>Periodontics II Student Presentations</b>	<b>G</b>	<b>½ - 10</b>
Discussion of clinical cases. Repeatable.			
<b>8002.17</b>	<b>Pediatric Dentistry II Introductory Orthodontics</b>	<b>G</b>	<b>½ - 10</b>
Discussion of clinical cases. Repeatable. This course is graded S/U.			
<b>8002.22</b>	<b>Orthodontics III Craniofacial Anomalies</b>	<b>G</b>	<b>½ - 10</b>
Discussion of clinical cases. Repeatable. This course is graded S/U.			
<b>8002.27</b>	<b>Pediatric Dentistry III Advanced Orthodontics</b>	<b>G</b>	<b>½ - 10</b>
Discussion of clinical cases. Repeatable. This course is graded S/U.			
<b>8002.32</b>	<b>Orthodontics IV Dental Facial Anomalies</b>	<b>G</b>	<b>½ - 10</b>
Discussion of clinical cases. Repeatable. This course is graded S/U.			
<b>8003</b>	<b>Research I</b>	<b>G</b>	<b>2</b>
Statistics and research design. Introduction to research ethics, human subject and animal research.			
<b>8004</b>	<b>Research II</b>	<b>G</b>	<b>1½</b>
Advanced topics related to research ethics, intellectual property, human subjects and animal research.			
<b>8006</b>	<b>Dental Photography</b>	<b>G</b>	<b>1</b>
Dental Photography. Topics include: equipment, setup and lighting; portrait and intra-oral photography; photo management and presentation; copystand photography. This course is graded S/U.			
<b>8007</b>	<b>Legal Issues in Dentistry</b>	<b>G</b>	<b>1</b>
Legal issues in the acquisition and management of a dental practice including issues associated with delivery of dental services to consumers, malpractice claims against practitioners and impact of government regulation on the delivery of care.			
<b>8008</b>	<b>Advanced Oral Embryology and Histology</b>	<b>G</b>	<b>½</b>
Development of the craniofacial region, odontogenesis, eruption and structure and function of the orofacial tissues.			
<b>8009</b>	<b>Research Design I</b>	<b>G</b>	<b>1</b>
Using different research designs as the foundation, this course reviews evidence-based dentistry and basic parametric and non-parametric methods of statistical inference commonly encountered in clinical research. The course also provides a background in ethical considerations for responsible conduct of research and protection of human subjects in biomedical research.			
<b>8010</b>	<b>Research Design II</b>	<b>G</b>	<b>2</b>
This course will cover many basic principles involved in the evaluation of dental literature, in the design of a research project, and in composing and evaluating a dental research proposal, with emphasis on ethical issues, variable descriptions, statistical designs and possible conclusions, and research involving human or animal subjects.			
<b>8011</b>	<b>Advanced Oral and Maxillofacial Radiology</b>	<b>G</b>	<b>1½</b>
The goals of this course are to engage residents in radiographic diagnosis through active, individual, and group learning.			
<b>8150</b>	<b>Orofacial Pain</b>	<b>G</b>	<b>1</b>
Overview of musculoskeletal, neuropathic and neurovascular facial pain to enable accurate differential diagnosis of non-odontogenic facial pain. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>8151</b>	<b>Sedation</b>	<b>G</b>	<b>1</b>
Covers the indications, complications, pharmacology and techniques of IV sedation for dentistry.			
<b>8152</b>	<b>Physical Diagnosis</b>	<b>G</b>	<b>1</b>
Reviews the skills and knowledge needed to perform a history and physical examination appropriate for hospital admission. This course is graded S/U.			
<b>8153</b>	<b>Anesthesia Seminar</b>	<b>G</b>	<b>½ - 1</b>
Comprehensive review of general anesthesia and sedation as well as related subjects to anesthesiology and oral and maxillofacial surgery residents in small group discussion format. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>8154</b>	<b>Integrated Anesthesia Studies</b>	<b>G</b>	<b>½</b>
This course is designed to help dental anesthesia residents gain a deeper understanding of the practice of anesthesia. Residents will discuss applied principles and techniques that will be encountered during residency training and in private practice. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			

<b>8155</b>	<b>Emergency Simulation Lab</b>	<b>G</b>	<b>½</b>
This course will teach, test, and refine clinical skills related to anesthesia emergencies. Training will utilize high-fidelity simulation mannequins and planned emergency scenarios. The lab sessions will take place in the OSUMC simulation lab and in the College of Dentistry. The course will incorporate video monitoring of the training and an in-depth debriefing sessions after each lesson. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			
<b>8156</b>	<b>Anesthesiology Science Core</b>	<b>G</b>	<b>1</b>
The purpose of this course is to help dental anesthesiology residents review the principles of general physiology. This will help residents in their treatment of patients and as they prepare to take part I of the ADBA national board examination. Repeatable to a maximum of 5 cr hrs.			
<b>8201</b>	<b>Advanced Orthodontics Orientation</b>	<b>G</b>	<b>1</b>
Orientation to methods used in conjunction with clinical care with an emphasis on diagnosis and treatment planning.			
<b>8202</b>	<b>Contemporary Orthodontics</b>	<b>G</b>	<b>½</b>
Introduction to concepts related to diagnosis, prioritization of problems and treatment planning orthodontic cases.			
<b>8203</b>	<b>Orthodontic Appliance Design</b>	<b>G</b>	<b>½</b>
Design, application and fabrication of orthodontic appliances frequently used in the clinical setting. The primary clinical function of these appliances includes: anchorage, tooth movement, skeletal change, habit management and retention.			
<b>8204</b>	<b>Cephalometrics</b>	<b>G</b>	<b>½</b>
Cephalometric techniques and interpretation in relation to orthodontic treatment and growth.			
<b>8205</b>	<b>Typodont Technique I</b>	<b>G</b>	<b>1</b>
Wire Bending techniques use in the treatment of orthodontic problems.			
<b>8206</b>	<b>Typodont Technique II</b>	<b>G</b>	<b>½</b>
Tweed edgewise technique.			
<b>8207</b>	<b>Orthodontic Diagnosis and Treatment I</b>	<b>G</b>	<b>2</b>
Orthodontic diagnosis and treatment planning focusing on problem oriented diagnostic approaches and evidence-based treatment. Seminar format.			
<b>8208</b>	<b>Orthodontic Diagnosis and Treatment II</b>	<b>G</b>	<b>½ - 2</b>
Orthodontic diagnosis and treatment planning focusing on problem oriented diagnostic approaches and evidence-based treatment. Seminar format.			
<b>8209</b>	<b>Biomechanics I</b>	<b>G</b>	<b>1½</b>
Biomechanics as related to Orthodontic treatment. Topics may include: biological basis of tooth movement, concepts of engineering stress and strain, polar moments of inertia, biomechanics or orthodontic tooth movement and skeletal anchorage.			
<b>8210</b>	<b>Biomechanics II</b>	<b>G</b>	<b>1½</b>
Biomechanics as related to Orthodontic treatment. Topics may include: biological basis of tooth movement, concepts of engineering stress and strain, polar moments of inertia, biomechanics or orthodontic tooth movement and skeletal anchorage.			
<b>8211</b>	<b>Orthodontic Materials</b>	<b>G</b>	<b>1½</b>
Scientific principles relating to the compositions, structures, properties and clinical performance of major orthodontic materials. Selection of orthodontic materials for clinical practice. Review of current orthodontic materials literature.			
<b>8213</b>	<b>Dentofacial Orthopedics</b>	<b>G</b>	<b>2</b>
Diagnosis and management of patients with dento-facial deformities.			
<b>8214</b>	<b>Growth and Development</b>	<b>G</b>	<b>2</b>
Principles of growth and development as they apply to orthodontics.			
<b>8215</b>	<b>Orthodontic Practice Management</b>	<b>G</b>	<b>½ - 2½</b>
Overview of practice management topics including financial, legal and clinical administration issues. Focus is on establishment and management of an individual or small group orthodontic practice.			
<b>8216</b>	<b>Craniofacial Anomalies</b>	<b>G</b>	<b>1½</b>
Diagnosis, treatment and management of the patient with cleft lip and palate and other craniofacial anomalies from a multi-disciplinary approach.			
<b>8300</b>	<b>Introduction to Periodontology</b>	<b>G</b>	<b>1</b>
Introduction to Advanced Periodontics. This course is graded S/U.			
<b>8302</b>	<b>Practice Management Seminar</b>	<b>G</b>	<b>½</b>
This course is designed to expose dental specialty students to practice management scenarios as a catalyst for critical thinking to enhance decision making processes for their practices. This course is graded S/U.			
<b>8303</b>	<b>Anatomy and Histology of the Periodontium</b>	<b>G</b>	<b>1</b>
Periodontal anatomy and histology, including peri-implant and surgical anatomy.			

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<b>8304</b>	<b>Periodontal Concepts I</b>	<b>G</b>	<b>2</b>
Periodontal disease assessment, classification, epidemiology, etiology & pathogenesis.			
<b>8305</b>	<b>Periodontal Concepts II</b>	<b>G</b>	<b>2</b>
Periodontal diseases and conditions, and risk assessment.			
<b>8306</b>	<b>Periodontal Concepts III</b>	<b>G</b>	<b>½</b>
Periodontal disease risk assessment.			
<b>8307</b>	<b>Periodontal Concepts IV</b>	<b>G</b>	<b>2</b>
Periodontal disease therapy and patient management.			
<b>8308</b>	<b>Periodontal Concepts V</b>	<b>G</b>	<b>2</b>
Periodontal disease therapy and patient management.			
<b>8310</b>	<b>Introduction to Implants</b>	<b>G</b>	<b>1½</b>
Biological and clinical considerations for dental implant therapy.			
<b>8410</b>	<b>Introduction to Removable Prosthodontics</b>	<b>G</b>	<b>1</b>
Diagnosis and treatment planning for edentulous patients. This course is graded S/U.			
<b>8412</b>	<b>Occlusal Schemes for Complete Prostheses</b>	<b>G</b>	<b>2</b>
Occlusal scheme treatment options for edentulous patients. Includes laboratory component.			
<b>8413</b>	<b>Removable Prosthodontics Design and Fabrication</b>	<b>G</b>	<b>1</b>
Occlusal and laboratory procedures associated with designing removable prosthodontics for edentulous patients. Includes laboratory component.			
<b>8421</b>	<b>Fixed Prosthodontics and Diagnostic Procedures</b>	<b>G</b>	<b>1</b>
Diagnostic Procedures and treatment options for fixed oral rehabilitation including mandibular movement studies. Includes laboratory component.			
<b>8422</b>	<b>Occlusal Schemes and Morphology For Fixed Prosthodontics</b>	<b>G</b>	<b>2</b>
Dentate occlusal schemes, static tooth contacts, excursive tooth contacts. Includes laboratory component.			
<b>8423</b>	<b>Fixed Prosthodontics Fabrication Techniques for Alloy Restorations</b>	<b>G</b>	<b>1</b>
Introduction to standards for fixed prosthodontic prostheses. Includes laboratory component.			
<b>8424</b>	<b>Fixed Prosthodontics Fabrication Techniques for Metal-Ceramic Restorations</b>	<b>G</b>	<b>1</b>
Material science principles of porcelain metal bond and procedures for porcelain application. Topics also include shade selection and correction. Includes laboratory component.			
<b>8437</b>	<b>Implant Interdisciplinary Lectures</b>	<b>G</b>	<b>2</b>
Overview of the way in which periodontists, prosthodontists, oral surgeons and orthodontists work together to provide care for dental implant patients. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>8446</b>	<b>Prosthodontic Treatment Planning Literature Review</b>	<b>G</b>	<b>1</b>
Overview of evidence based treatment planning for prosthodontic therapy. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8451</b>	<b>Interdisciplinary Periodontics Prosthodontics Seminar</b>	<b>G</b>	<b>1</b>
Overview of the relationships between periodontic and prosthodontic treatment with an emphasis on the pre-surgical, surgical and post-surgical aspects of dental implants. Repeatable to a maximum of 10 cr hrs.			
<b>8460</b>	<b>Maxillofacial Prosthodontics Introduction</b>	<b>G</b>	<b>1</b>
Introduction to maxillofacial prosthodontics including types of defects, prostheses and their principles of design and issues related to oncologic therapy.			
<b>8466</b>	<b>Maxillofacial Prosthodontics Literature Review</b>	<b>G</b>	<b>1</b>
Review of literature related to maxillofacial prosthodontics including critical assessment of study validity and evidence based treatment decisions. Repeatable to a maximum of 10 cr hrs.			
<b>8471</b>	<b>Dental Materials Metals and Polymers</b>	<b>G</b>	<b>1</b>
Overview of evidence based treatment decisions related to the use of dental alloys and polymers. Repeatable to a maximum of 10 cr hrs.			
<b>8472</b>	<b>Dental Materials: Ceramics and Polymers</b>	<b>G</b>	<b>1</b>
This course presents basic scientific and engineering information on polymeric dental materials and ceramic dental materials. The focus will be on understanding the basic physical, mechanical and biological properties of these materials. Each course session will start with a lecture and conclude with presentation and discussion of current literature. Repeatable to a maximum of 3 cr hrs.			
<b>8474</b>	<b>Pharmacology and TMD for Dental Specialists</b>	<b>G</b>	<b>2</b>
Overview of Pharmacology for students in Advanced Dental Specialty Education Programs with an emphasis on drug interactions. Impact of Temporomandibular Disorders on dental treatment from the perspective of structure and function. This course is progress graded (S/U).			

<b>8600</b>	<b>Advanced Endodontics</b>	<b>G</b>	<b>1 - 5</b>
Advanced endodontic topics. May also include literature review and national examination review. Repeatable to a maximum of 50 cr hrs or 50 completions.			
<b>8601</b>	<b>Oral Pathology I</b>	<b>G</b>	<b>½</b>
Review and discussion of oral management and prognosis of selected developmental, inflammatory, immunologically-mediated and infectious diseases. Repeatable to a maximum of 5 cr hrs.			
<b>8602</b>	<b>Oral Pathology II</b>	<b>G</b>	<b>2</b>
Review and detailed discussion of oral manifestations, etiology, pathogenesis, management and prognosis of selected neoplasms, bone disorders and additional conditions of immunologic, salivary and odontogenic origin. Repeatable to a maximum of 20 cr hrs.			
<b>8603</b>	<b>Oral Pathology for Periodontists</b>	<b>G</b>	<b>1</b>
Review and discussion of oral and systemic conditions that arise in or affect the jaws and particularly the alveolar or periodontal hard and soft tissues. Repeatable to a maximum of 10 cr hrs.			
<b>8635</b>	<b>Diagnostic Histopathology</b>	<b>G</b>	<b>½ - 2</b>
Daily review of oral biopsy laboratory service materials, including microscopic differential diagnosis, case management and final diagnosis. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.			
<b>8650</b>	<b>Neoplasms</b>	<b>G</b>	<b>½ - 2</b>
Specialist level review and discussion of neoplastic disease. Repeatable to a maximum of 20 cr hrs.			
<b>8703</b>	<b>Children with Disabilities and Chronic Illnesses</b>	<b>G</b>	<b>1½</b>
Management of the oral health of patients with special health care needs. Repeatable to a maximum of 15 cr hrs.			
<b>8704</b>	<b>Pediatric Dentistry Behavior Issues</b>	<b>G</b>	<b>1</b>
Basic principles and theories of child development and the age-appropriate behavior responses in the dental setting. Repeatable to a maximum of 10 cr hrs.			
<b>8705</b>	<b>Pediatric Dentistry Restorative Treatment</b>	<b>G</b>	<b>1</b>
Restorative and prosthetic techniques and materials for the primary, mixed and permanent dentitions. Repeatable to a maximum of 10 cr hrs.			
<b>8706</b>	<b>Pediatric Dentistry Pulp and Trauma Treatment</b>	<b>G</b>	<b>½ - 1</b>
Evaluation, diagnosis, and management of the pulpal, periodontal and associated soft tissues following traumatic injury. Repeatable to a maximum of 10 cr hrs.			
<b>8707</b>	<b>Pediatric Dentistry Sedation</b>	<b>G</b>	<b>½ - 2</b>
The principles and objectives of conscious sedation, deep sedation and general anesthesia as behavior management techniques, including indications and contraindications for their use. Repeatable to a maximum of 20 cr hrs or 20 completions.			
<b>8708</b>	<b>Pediatric Dentistry Cariology</b>	<b>G</b>	<b>½ - 1½</b>
The scientific basis for the prevention and treatment of dental caries and periodontal diseases. Repeatable to a maximum of 15 cr hrs.			
<b>8709</b>	<b>Pediatric Dentistry Dental Public Health and Advocacy</b>	<b>G</b>	<b>½ - 2</b>
Introduction of the concepts and techniques of disease prevention and health promotion in dentistry and health. In-depth advocacy training with hands-on exercises. Repeatable to a maximum of 20 cr hrs.			
<b>8710</b>	<b>Graduate Pediatric Oral Pathology</b>	<b>G D</b>	<b>1</b>
Oral Pathology for Pediatric Dentists. Repeatable to a maximum of 5 cr hrs.			
<b>8711</b>	<b>Management of a Contemporary Private Practice</b>	<b>G</b>	<b>½ - 1½</b>
Dent 8711 includes lecture sessions, seminars, and visits to dental practices in the Central Ohio area. Lectures and seminars will focus on contemporary private practice. Areas of focus will include ethical reasoning, informed consent issues, liability mitigation, collaboration with dental specialties and medical specialties, purchasing of a practice, dental staff management, and value-based care. Repeatable to a maximum of 1.5 cr hrs or 2 completions.			
<b>8840</b>	<b>Current Issues in Oral Biology</b>	<b>G</b>	<b>½ - 2</b>
Didactic overview of current areas of health research. Repeatable to a maximum of 40 cr hrs or 20 completions. This course is graded S/U.			
<b>8993</b>	<b>Individual Studies in Advanced Dentistry</b>	<b>G</b>	<b>½ - 12</b>
Advanced individual studies in any of the recognized fields of dentistry. Repeatable.			
<b>8999</b>	<b>Research in Dentistry</b>	<b>G</b>	<b>½ - 12</b>
Research for thesis purposes only. Repeatable. This course is graded S/U.			

## Design

<b>2110</b>	<b>Design Fundamentals I</b>	<b>U</b>	<b>3</b>
Introduction to form, organizational structures and problem solving in the context of basic 2D design. Concur: 2310.			
<b>2130</b>	<b>Design Fundamentals III</b>	<b>U</b>	<b>3</b>
Application of acquired skills and knowledge of visual language and spatial constructs to generate design concepts in a given context. Prereq: 2110. Concur: 2330.			
<b>2310</b>	<b>Visual Principles and Techniques I</b>	<b>U</b>	<b>3</b>
Skill building in using drawing to observe, see, record and communicate characteristics of subjects, objects, information, environments, experiences and interactions. Concur: 2110.			
<b>2330</b>	<b>Visual Principles and Techniques III</b>	<b>U</b>	<b>3</b>
Skills and techniques mix media that assist in interpreting, translating and generating visual narratives that reveal relationships among subjects, objects, information, environments, experience and interactions. Prereq: 2310. Concur: 2130.			
<b>2700</b>	<b>Introduction to Design Practice</b>	<b>U</b>	<b>3</b>
Introduction to theory, rationale, practice, and societal impact of design; design process, critical issues, relationship to the environment. Design Minor and Entrepreneurship and Innovation Minor students may register without prereqs or corequisites. Concur: 2110, 2120, 2310, and 2320.			
<b>2750</b>	<b>Design History</b>	<b>U</b>	<b>3</b>
A history of design as affected by technology, science, and cultural world view. Prereq: 2110, 2120, 2310, 2320, and 2700, or minor in Design. Concur: 2130, 2140, 2330, and 2340, or minor in Design.			
<b>3101</b>	<b>Introduction to Industrial Design I</b>	<b>U</b>	<b>3</b>
Introduction to divergent thinking strategies including design research, observation, abstraction, evaluation and communication in the context of Industrial Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3200, 3301, and 3400. Not open to students with credit for 262.04.			
<b>3102</b>	<b>Introduction to Interior Design I</b>	<b>U</b>	<b>3</b>
The study of the relationship of form, function and material within the context of Interior Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3200, 3302, and 3400. Not open to students with credit for 262.08.			
<b>3103</b>	<b>Introduction to Visual Communication Design I</b>	<b>U</b>	<b>3</b>
Design and application of graphic systems in the production of visual communications within frameworks of theories of communication and signs. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3200, 3400, and 3503. Not open to students with credit for 262.02.			
<b>3104</b>	<b>Introduction to Game Design</b>	<b>U</b>	<b>3</b>
Introduction to Game Design introduces students to the principles of game design and provides opportunities for them to be put into practice using analog materials and methods. Students explore what motivates play, risk-taking and reward systems, and the visual design of games for serious applications and leisure. Create, test, and play games developed in the course.			
<b>3105</b>	<b>Exploring Design Thinking</b>	<b>U</b>	<b>3</b>
An overview of concepts, processes and modes of identifying problems and proposing effective solutions from a design-oriented perspective. Prereq: Not open to students with credit for 230.			
<b>3151</b>	<b>Introduction to Industrial Design II</b>	<b>U</b>	<b>3</b>
Application of divergent thinking strategies including design research, manufacturing, evaluation and digital communication in the context of Industrial Design. Prereq: 3101, and enrollment in Design major; or permission of instructor. Concur: 3450 and 3550. Not open to students with credit for 460.04.			
<b>3152</b>	<b>Introduction to Interior Design II</b>	<b>U</b>	<b>3</b>
The study of the relationship between the user and spatial form, function and material within the context of Interior Design. Prereq: 3102, and enrollment in Design major; or permission of instructor. Concur: 3450 and 3552. Not open to students with credit for 460.08.			
<b>3153</b>	<b>Introduction to Visual Communication Design II</b>	<b>U</b>	<b>3</b>
Design and application of typographic systems in the production of visual communications within frameworks of theories of communication. Prereq: 3103, and enrollment in Design major; or permission of instructor. Concur: 3450 and 3550. Not open to students with credit for 460.02.			
<b>3200</b>	<b>Design Research I</b>	<b>U</b>	<b>3</b>
Introduction to techniques and methods of evaluative research. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3101, 3301, and 3400; or 3102, 3302, and 3400; or 3103, 3400, and 3503. Not open to students with credit for 555.			

<b>3301</b>	<b>Visualization Strategies for Industrial Design I</b>	<b>U</b>	<b>3</b>
Skill development in using freehand sketching for rapid concept generation, form development and communication in the context of Industrial Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3101, 3200, and 3400. Not open to students with credit for 501.			
<b>3305</b>	<b>Visualization as Thinking</b>	<b>U</b>	<b>3</b>
An overview of concepts, processes and modes of communicating with visual media to effectively generate design proposals.			
<b>3400.01</b>	<b>Design Media I for Industrial Design</b>	<b>U</b>	<b>3</b>
Introductory-level digital, three-dimensional modeling and visualization strategies for Industrial Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3101, 3200, and 3301; or 3102, 3200, and 3302; or 3103, 3200, and 3503. Not open to students with credit for 3400, 3400.02, or 3400.03.			
<b>3400.02</b>	<b>Design Media I for Interior Design</b>	<b>U</b>	<b>3</b>
Introductory-level digital, three-dimensional modeling and visualization strategies for Interior Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3101, 3200, and 3301; or 3102, 3200, and 3302; or 3103, 3200, and 3503. Not open to students with credit for 3400, 3400.01, or 3400.03.			
<b>3400.03</b>	<b>Design Media I for Visual Communication Design</b>	<b>U</b>	<b>3</b>
Introductory-level digital, user-interface and user-experience strategies for Visual Communication Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3101, 3200, and 3301; or 3102, 3200, and 3302; or 3103, 3200, and 3503. Not open to students with credit for 3400, 3400.01, or 3400.02.			
<b>3450.01</b>	<b>Design Media II for Industrial Design</b>	<b>U</b>	<b>3</b>
Intermediate-level digital, three-dimensional modeling and visualization strategies for Industrial Design. Prereq: 3400.01, and enrollment in Design major; or permission of instructor. Concur: 3151 and 3550.01; or 3152 and 3552; or 3153 and 3550.01. Not open to students with credit for 3450, 3450.02, or 3450.03.			
<b>3450.02</b>	<b>Design Media II for Interior Design</b>	<b>U</b>	<b>3</b>
Intermediate-level digital, three-dimensional modeling and visualization strategies for Interior Design. Prereq: 3400.02, and enrollment in Design major; or permission of instructor. Concur: 3151 and 3550.02; or 3152 and 3552; or 3153 and 3550.02. Not open to students with credit for 3450, 3450.01, or 3450.03.			
<b>3450.03</b>	<b>Design Media II for Visual Communication Design</b>	<b>U</b>	<b>3</b>
Intermediate-level digital, web-communications strategies for Visual Communication Design. Prereq: 3400.03, and enrollment in Design major; or permission of instructor. Concur: 3151 and 3550.03; or 3152 and 3552; or 3153 and 3550.03. Not open to students with credit for 3450, 3450.01, or 3450.02.			
<b>3503</b>	<b>Typographic Design</b>	<b>U</b>	<b>3</b>
Introduction to basic two- and three-dimensional practices in visual communication design; emphasis on typographic design and systematic method and research techniques. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3103, 3200, and 3400. Not open to students with credit for 258.			
<b>3505</b>	<b>Presentation as Thinking</b>	<b>U</b>	<b>3</b>
An overview of concepts, processes and modes of presenting information to create effective printed and digital communications.			
<b>3550.01</b>	<b>Materials, Process, and Production for Industrial Design</b>	<b>U</b>	<b>3</b>
An overview of current and emerging materials and manufacturing processes commonly applied in production for Industrial Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3151 and 3450.01; or 3153 and 3450.01. Not open to students with credit for 3550 (254), 3550.02, or 3550.03.			
<b>3550.02</b>	<b>Materials, Process, and Production for Interior Design</b>	<b>U</b>	<b>3</b>
An overview of current and emerging materials and manufacturing processes commonly applied in production for Interior Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3151 and 3450.02; or 3153 and 3450.02. Not open to students with credit for 3550 (254), 3550.01, or 3550.03.			
<b>3550.03</b>	<b>Materials, Process, and Production for Visual Communication Design</b>	<b>U</b>	<b>3</b>
An overview of current and emerging materials and manufacturing processes commonly applied in production for Visual Communication Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3151 and 3450.03; or 3153 and 3450.03. Not open to students with credit for 3550 (254), 3550.01, or 3550.02.			
<b>3552</b>	<b>Interior Design Technology I</b>	<b>U</b>	<b>3</b>
Principles of contract documentation, laws, ethics, codes, standards, guidelines and sustainable practices within the context of Interior Design. Prereq: Enrollment in Design major, or permission of instructor. Concur: 3152 and 3450. Not open to students with credit for 525.			

## 130 Design

<b>4101</b>	<b>Intermediate Industrial Design I</b>	<b>U</b>	<b>3</b>
Introduction to problem and opportunity identification in the context of product design. Experience with evaluative research methods and product design development process at the intermediate level. Prereq: 3151, and enrollment in Design major; or permission of instructor. Concur: 4200 and 4400. Not open to students with credit for 461.04.			
<b>4102</b>	<b>Intermediate Interior Design I</b>	<b>U</b>	<b>3</b>
Principles of space organization with FF&E (furniture, fixtures and equipment); the study of human-interior product interface relationships. Prereq: 3152, and enrollment in Design major; or permission of instructor. Concur: 4200, 4302, and 4502. Not open to students with credit for 461.08.			
<b>4103</b>	<b>Intermediate Visual Communication Design I</b>	<b>U</b>	<b>3</b>
Design and application of information systems in the production of visual communications within frameworks of theories of communication. Prereq: 3153, and enrollment in Design major; or permission of instructor. Concur: 4200 and 4400. Not open to students with credit for 461.02.			
<b>4104</b>	<b>Intermediate Game Design I</b>	<b>U</b>	<b>3</b>
Intermediate Game Design 1 introduces students to concepts for designing and prototyping digital games for entertainment, learning and social good. Students create, test, and play screen-based games developed in the course. Prereq: 3104.			
<b>4151</b>	<b>Intermediate Industrial Design II</b>	<b>U</b>	<b>3</b>
Introduction to problem and opportunity identification in the context of experience design. Experience with generative research methods and design development process at the intermediate level. Prereq: 4101, and enrollment in Design major; or permission of instructor. Concur: 4650 and 4750. Not open to students with credit for 462.04.			
<b>4152</b>	<b>Intermediate Interior Design II</b>	<b>U</b>	<b>3</b>
Principles of order, spatial sequence and connectivity; the study of medium size space organization and interior and exterior design correlations. Prereq: 4102, and enrollment in Design major; or permission of instructor. Concur: 4650 and 4750. Not open to students with credit for 462.08.			
<b>4153</b>	<b>Intermediate Visual Communication Design II</b>	<b>U</b>	<b>3</b>
Design and application of graphic form explorations that emphasize seeing, interpreting, manipulating, composing, and creating visual communication signs and messages. Prereq: 4103, and enrollment in Design major; or permission of instructor. Concur: 4650 and 4750. Not open to students with credit for 462.02.			
<b>4154</b>	<b>Intermediate Game Design II</b>	<b>U</b>	<b>3</b>
Intermediate Game Design 2 introduces students to concepts for designing and producing fun and serious games and apps that include networked multi-player formats and mobile devices. Students create, test, and play mobile games developed in the course. Prereq: 4104.			
<b>4200</b>	<b>Design Research II</b>	<b>U</b>	<b>3</b>
Introduction to tools techniques and methods and mindsets of generative research. Prereq: 3200, and enrollment in Design major; or permission of instructor. Concur: 4101 and 4400; or 4102, 4302, and 4502; or 4103 and 4400. Not open to students with credit for 554.			
<b>4400.01</b>	<b>Design Media III for Industrial Design</b>	<b>U</b>	<b>3</b>
Time-based media and storytelling strategies for Industrial Design. Prereq: 3450.01, and enrollment in Design major; or permission of instructor. Concur: 4101 and 4200; or 4103 and 4200. Not open to students with credit for 4400, 4400.02, or 4400.03.			
<b>4400.02</b>	<b>Design Media III for Interior Design</b>	<b>U</b>	<b>3</b>
Time-based media and storytelling strategies for Interior Design. Prereq: 3450.02, and enrollment in Design major; or permission of instructor. Concur: 4101 and 4200; or 4103 and 4200. Not open to students with credit for 4400, 4400.01, or 4400.03.			
<b>4400.03</b>	<b>Design Media III for Visual Communication Design</b>	<b>U</b>	<b>3</b>
Time-based media and storytelling strategies for Visual Communication Design. Prereq: 3450.03, and enrollment in Design major; or permission of instructor. Concur: 4101 and 4200; or 4103 and 4200. Not open to students with credit for 4400, 4400.01, or 4400.02.			
<b>4405</b>	<b>Design Media for Non-Majors</b>	<b>U</b>	<b>3</b>
The application of electronic media technologies to design content. Prereq: 3105, 3305, or 3505. Not open to students with credit for 320.			
<b>4502</b>	<b>Interior Design Technology II</b>	<b>U</b>	<b>3</b>
An overview of current and emerging materials, construction methods and manufacturing processes in Interior Design. Prereq: 3552, and enrollment in Design major; or permission of instructor. Concur: 4102, 4200, and 4302. Not open to students with credit for 525.			
<b>4505</b>	<b>3-D Visualization</b>	<b>U</b>	<b>3</b>
Concepts of 3D modeling, rendering and animation for visualizing design forms. Prereq: 3305. Not open to students with credit for 571.			

<b>4650</b>	<b>Collaborative Design</b>	<b>U</b>	<b>3</b>
Interdisciplinary knowledge and problems examined and discussed in the context of social responsibility (global and local). Prereq: Enrollment in Design major, or permission of instructor. Concur: 4151 and 4750; or 4152 and 4750; or 4153 and 4750. Not open to students with credit for 760.			
<b>4750</b>	<b>Professional Practices</b>	<b>U</b>	<b>3</b>
Investigation of the administrative and legal aspects of the design profession contrasting the private firm with corporate and free-lance practices. Prereq: Enrollment in Design major, or permission of instructor. Concur: 4151 and 4650; or 4152 and 4650; or 4153 and 4650. Not open to students with credit for 656.			
<b>4797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>6</b>
A study abroad experience at a foreign institution approved by the Department of Design. Prereq: Enrollment in Design major, or permission of instructor. Not open to students with credit for 697.			
<b>4998</b>	<b>Undergraduate Scholarship: Research and Creative Activity in Design</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research and creative activities in varying topics. Prereq: Enrollment in Design major, or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions.			
<b>4998H</b>	<b>Undergraduate Scholarship: Honors Research and Creative Activity in Design</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate Honors research and creative activities in varying topics. Prereq: Honors standing, and enrollment in Design major; or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions.			
<b>4999</b>	<b>Undergraduate Scholarship: Thesis Research and Creative Activity in Design</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate thesis research and creative activities in varying topics. Prereq: Enrollment in Design major, or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Undergraduate Scholarship: Honors Thesis Research and Creative Activity in Design</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate Honors thesis research and creative activities in varying topics. Prereq: Honors standing, and enrollment in Design major; or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions. This course is graded S/U.			
<b>5101</b>	<b>Advanced Industrial Design I</b>	<b>U G</b>	<b>3</b>
Application of problem and opportunity identification in the context of a specific client organization needs. Prereq: 4101, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5200 and 5301. Not open to students with credit for 660.04.			
<b>5102</b>	<b>Advanced Interior Design I</b>	<b>U G</b>	<b>3</b>
Principles of organizational strategy and interior identity development addressing the physical, social, and psychological context of work, leisure, and learning environments. Prereq: 4102, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5200 and 5502. Not open to students with credit for 460.08.			
<b>5103</b>	<b>Advanced Visual Communication Design I</b>	<b>U G</b>	<b>3</b>
Application of planning, analyzing, and designing in two- or three-dimensional visual communication systems; emphasis on application of design research, strategic thinking, creative concepts, and graphic implementation. Prereq: 4103, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5200 and 5800. Not open to students with credit for 660.02.			
<b>5151</b>	<b>Advanced Industrial Design II</b>	<b>U G</b>	<b>3</b>
A competency with tools, technologies, skills and materials in the exploration, creation, and production of products, artifacts, environments, systems, communication solutions and services. Prereq: 5101, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5800. Not open to students with credit for 661.04.			
<b>5152</b>	<b>Advanced Interior Design II</b>	<b>U G</b>	<b>3</b>
Student develops project that applies principles of organizational strategy and interior identity development addressing the physical, social, and psychological context of work, leisure, and learning environments. Prereq: 5102, or Grad standing or enrollment in Design major, or permission of instructor. Concur: 5552. Not open to students with credit for 661.08.			
<b>5153</b>	<b>Advanced Visual Communication Design II</b>	<b>U G</b>	<b>3</b>
Apply design research, problem definitions, concept development, and implementation approaches in creating comprehensive projects that are relevant to proposed subject, design objectives, and targeted audiences. Prereq: 5103, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5453. Not open to students with credit for 661.02.			
<b>5191</b>	<b>Internship</b>	<b>U G</b>	<b>1½ - 9</b>
Field application of design in a capacity requiring a close working relationship within a professional environment. Prereq: Grad standing, or enrollment in Design major; or permission of instructor. Repeatable to a maximum of 27 cr hrs or 3 completions.			

<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>3 - 9</b>
Advanced study for students in specialized programs. Prereq: Enrollment in Design major, or permission of instructor. Not open to students with credit for 693. Repeatable to a maximum of 27 cr hrs or 3 completions.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>3 - 9</b>
Group studies for students in specialized programs. Prereq: Grad standing, or enrollment in Design major, or permission of instructor. Not open to students with credit for 694. Repeatable to a maximum of 27 cr hrs or 3 completions.			
<b>5200.01</b>	<b>Design Research III for Industrial Design</b>	<b>U G</b>	<b>3</b>
Addresses design opportunities, including the skills of problem identification, formulation, qualitative and quantitative research, analysis, synthesis, and project proposals for Industrial Design. Prereq: 4200, and Design major; or Grad standing; or permission of instructor. Concur: 5101 and 5301; or 5102 and 5502; or 5103 and 5800.01. Not open to students with credit for 5200, 5200.02, 5200.03, 662.02, 662.04, or 662.08.			
<b>5200.02</b>	<b>Design Research III for Interior Design</b>	<b>U G</b>	<b>3</b>
Addresses design opportunities, including the skills of problem identification, formulation, qualitative and quantitative research, analysis, synthesis, and project proposals for Interior Design. Prereq: 4200, and Design major; or Grad standing; or permission of instructor. Concur: 5101 and 5301; or 5102 and 5502; or 5103 and 5800.02. Not open to students with credit for 5200, 5200.01, 5200.03, 662.02, 662.04, or 662.08.			
<b>5200.03</b>	<b>Design Research III for Visual Communication Design</b>	<b>U G</b>	<b>3</b>
Addresses design opportunities, including the skills of problem identification, formulation, qualitative and quantitative research, analysis, synthesis, and project proposals for Visual Communication Design. Prereq: 4200, and Design major; or Grad standing; or permission of instructor. Concur: 5101 and 5301; or 5102 and 5502; or 5103 and 5800.03. Not open to students with credit for 5200, 5200.01, 5200.02, 662.02, 662.04, or 662.08.			
<b>5301</b>	<b>Visualization Strategies for Industrial Design II</b>	<b>U G</b>	<b>3</b>
Design and application of information systems in the production of visual communications within frameworks of Design Research and Industrial Design. Prereq: 3301, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5102 and 5200. Not open to students with credit for 552.			
<b>5453</b>	<b>Design Media IV for Visual Communication Design</b>	<b>U G</b>	<b>3</b>
Advanced-level digital, user-interface and user-experience strategies for Visual Communication Design. Prereq: 4400, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5153.			
<b>5502</b>	<b>Interior Design Technology III</b>	<b>U G</b>	<b>3</b>
Principles of environmental control within the context of Interior Design. Prereq: 5101, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5800. Not open to students with credit for 524.			
<b>5505</b>	<b>Information Design</b>	<b>U G</b>	<b>3</b>
Design principles related to visualizing quantitative information, processes and systems. Prereq: Not open to students with credit for 340.			
<b>5552</b>	<b>Interior Design Technology IV</b>	<b>U G</b>	<b>3</b>
Principles of material specifications, liability, contracts and bidding documentation within the context of Interior Design. Prereq: 5502, or Grad standing, or enrollment in Design major, or permission of instructor. Concur: 5152. Not open to students with credit for 523.			
<b>5600S</b>	<b>Design Matters</b>	<b>U G</b>	<b>3</b>
Students in this interdisciplinary design/build studio have the opportunity to work on site in a collaborative design environment with a local non-profit organization. Prereq: Enrollment in Design major, or permission of instructor. Not open to students with credit for 553S.			
<b>5650</b>	<b>Advanced Collaborative Design</b>	<b>U G</b>	<b>3</b>
Interdisciplinary knowledge and problems examined and discussed in the context of social responsibility (global and local). Prereq: Enrollment in Design major, or permission of instructor. Concur: 5301; or 5552 and 4750; or 5453.			
<b>5750</b>	<b>Advanced Design History: Interiors, Contents, Communication, and Culture</b>	<b>U G</b>	<b>3</b>
Advanced study of the history of the designed environment, product, and communication systems.			
<b>5798</b>	<b>Study Tour</b>	<b>U G</b>	<b>3 - 9</b>
Specific content, location, term(s) of offering, and prerequisites vary; contact department office for details. Prereq: Grad standing, Design majors only, or permission of instructor. Not open to students with credit for 698.01 or 698.02. Repeatable to a maximum of 9 cr hrs or 2 completions.			

<b>5800.01</b>	<b>Design Seminar for Industrial Design</b>	<b>U G</b>	<b>3</b>
Investigation of issues and inquiry into topics of relevance to design; group discussions and analysis of events, processes, manifestations and procedures in Industrial Design. Prereq: Grad standing, or enrollment in Design major; or permission of instructor. Concur: 5151, or 5103 and 5200.01. Not open to students with credit for 5800 (780), 5800.02, or 5800.03.			
<b>5800.02</b>	<b>Design Seminar for Interior Design</b>	<b>U G</b>	<b>3</b>
Investigation of issues and inquiry into topics of relevance to design; group discussions and analysis of events, processes, manifestations and procedures in Interior Design. Prereq: Grad standing, or enrollment in Design major; or permission of instructor. Concur: 5151, or 5103 and 5200.02. Not open to students with credit for 5800 (780), 5800.01, or 5800.03.			
<b>5800.03</b>	<b>Design Seminar for Visual Communication Design</b>	<b>U G</b>	<b>3</b>
Investigation of issues and inquiry into topics of relevance to design; group discussions and analysis of events, processes, manifestations and procedures in Visual Communication Design. Prereq: Grad standing, or enrollment in Design major; or permission of instructor. Concur: 5151, or 5103 and 5200.03. Not open to students with credit for 5800 (780), 5800.01, or 5800.02.			
<b>6100</b>	<b>Methods and Tools for Conducting Design Research</b>	<b>G</b>	<b>3</b>
Hands-on learning experiences in using and analyzing design research methods, tools and techniques, user-centered design research (applied ethnography, contextual inquiry, evaluative research, usability) and generative design research. Prereq: Grad standing in Design, or permission of instructor. Not open to students with credit for 786. Repeatable to a maximum of 6 cr hrs.			
<b>6200</b>	<b>Foundation for Graduate Design Studies</b>	<b>G</b>	<b>3</b>
Expectations, orientation, and available resources in the department and university. Historical and contextual groundwork of the discipline of design through the study of a broad range of contemporary and emerging research approaches. Prereq: Design grad students only, or permission of instructor. Not open to students with credit for 785. Repeatable to a maximum of 6 cr hrs.			
<b>6300</b>	<b>Exploration in Graduate Design Studies</b>	<b>G</b>	<b>3</b>
Exploration and discovery in future-oriented domains of design practice and research. Students will practice the tools for exploration including reading, writing, making, planning, and reflection in order to establish their own research path. Prereq: Design grad students only, or permission of instructor. Not open to students with credit for 787. Repeatable to a maximum of 6 cr hrs.			
<b>6400</b>	<b>Graduate Design Studio</b>	<b>G</b>	<b>3</b>
Hands-on learning experiences in the studio or field. Collaborative teams work to explore, identify and/or solve problems. Topics vary depending on the opportunity for sponsored projects, emerging trends in practice and expertise of instructor. Prereq: Grad standing in Design, or permission of instructor. Not open to students with credit for 760. Repeatable to a maximum of 18 cr hrs.			
<b>6500</b>	<b>Graduate Design Seminar</b>	<b>G</b>	<b>3</b>
Reading, thinking, discussing, reflecting, and writing are used to explore topics of relevance. Topics vary depending on emerging trends in design practice and in the world as well as the expertise and research interest of the instructor. Prereq: Grad standing in Design, or permission of instructor. Not open to students with credit for 780. Repeatable to a maximum of 18 cr hrs.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>½ - 6</b>
Individual studies. Prereq: Grad standing in Design, or permission of instructor. Not open to students with credit for 993. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>3</b>
Group studies for students in specialized programs. Prereq: Design grad students only, or permission of instructor. Not open to students with credit for 894. Repeatable to a maximum of 6 cr hrs.			
<b>7998</b>	<b>Thesis Project Development</b>	<b>G</b>	<b>½ - 6</b>
Development of project outcomes as part of Thesis research. Prereq: Grad standing in Design, or permission of instructor. Not open to students with credit for 950. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>7999</b>	<b>Thesis Writing Development</b>	<b>G</b>	<b>½ - 6</b>
Development of writing outcomes as part of Thesis research. Prereq: Grad standing in Design, or permission of instructor. Not open to students with credit for 998. Repeatable to a maximum of 18 cr hrs or 6 completions.			

## Disability Studies

<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research in variable topics related to Disability Studies. Student-initiated projects. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

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<b>4998H</b>	<b>Undergraduate Honors Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate honors research in variable topics related to Disability Studies. Student-initiated projects. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research: Thesis</b>	<b>U</b>	<b>1 - 4</b>
A program of reading, research, writing, and/or creative work arranged for each student, with individual conferences, progress reports, and thesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 4</b>
A program of reading, research, writing, and/or creative work arranged for each student, with individual conferences, progress reports, and honors thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5191</b>	<b>Disability Studies Internship</b>	<b>U G</b>	<b>1 - 3</b>
Offers undergraduate and graduate students the opportunity to work with disability-related organizations on or off campus. Prereq: English 2277 or SphHrng 4510, and permission of instructor who will supervise the internship. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Students may register for individual directed study under this number for work not typically offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Students may register for group-directed study under this number for work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>6700</b>	<b>Introduction to Graduate Study in Disability Studies</b>	<b>G</b>	<b>3</b>
Introduction to Disability Studies as an interdisciplinary academic field of study; outlines major scholarly perspectives, methodologies, and professional issues in the study of disability. Prereq: Not open to students with credit for ArtsSci 6700 (700).			

## Diversity and Identity Studies

<b>5700</b>	<b>Diversity and Identity Studies Workshop</b>	<b>U G</b>	<b>1 - 3</b>
Students study topics about diversity (race, class, gender, disability, sexuality, etc) in a seminar-like setting, often focused on the work of visiting scholars. Prereq: Jr or Sr standing, Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

## Earth Science

<b>1100</b>	<b>Planet Earth: How It Works</b>	<b>U</b>	<b>4</b>
The materials of the Earth's crust, the processes that produce and modify them, the development of the Earth and its life forms through time, and responsible stewardship of the earth's resources. Not intended for ASC B.S. students. Prereq: Not open to students with credit for 1121. This course is available for EM credit. GE nat sci phys course.			
<b>1105</b>	<b>Geology of the National Parks</b>	<b>U</b>	<b>3</b>
Geologic processes, materials, and history revealed in geologic settings of the National Parks. Not intended for ASC BS students. Prereq: Not open to students with credit for 1100. GE nat sci phys course.			
<b>1107</b>	<b>Field-Based Introduction to Oceanography</b>	<b>U</b>	<b>2</b>
Origin, development, and structure of ocean basins and their contents; contemporary oceanic processes of geologic significance. Offered full-time for 1 week at Stone Lab. Prereq: Permission of instructor. Not open to students with credit for EarthSci 107, 206, GeolSci 107, or 206.			
<b>1108</b>	<b>Gemstones</b>	<b>U</b>	<b>3</b>
General introduction to gemstones, including the origin of gems, identification techniques, and the history of important gems. Precious metals are also discussed. Not intended for ASC BS students. GE nat sci phys course.			
<b>1110</b>	<b>History of Life on Earth-Global Change in the Biosphere</b>	<b>U</b>	<b>3</b>
3.5 billion years of biosphere global change; introduction to major evolutionary and extinction events; processes responsible for change; biosphere, atmosphere, and lithosphere interrelationships. Prereq: Not open to students with credit for EarthSci 110 or GeolSci 110. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			

<b>1110H</b>	<b>Honors History of Life on Earth-Global Change in the Biosphere</b>	<b>U</b>	<b>3</b>
3.5 billion years of biosphere global change; introduction to major evolutionary and extinction events; processes responsible for change; and biosphere, atmosphere, and lithosphere interrelationships. Prereq: Honors standing, or permission of instructor. Not open to students with credit for EarthSci 110, 110H, GeolSci 110, or 110H. GE nat sci phys course. NS Admis Cond course.			
<b>1121</b>	<b>The Dynamic Earth</b>	<b>U</b>	<b>3</b>
This course introduces students to earth sciences. Topics include earth processes and human impacts; the structure and composition of the earth, plate tectonics, rock & water cycles, energy & mineral resources, and climate change. Before Autumn 2021: GE Physical Science with Lab. Autumn 2021 and after: GE Physical Science without Lab. Add EarthSc 1200 for lab credit. Prereq: Math 1075 or above, or ACT Mathematics Subscore of 22 or higher, or Math Placement Level R or better. Not open to students with credit for 1100. This course is available for EM credit. GE nat sci phys course.			
<b>1121H</b>	<b>Honors The Dynamic Earth</b>	<b>U</b>	<b>4</b>
Minerals, rocks, and their origin; land forms and how they are produced; structural features of the Earth's crust. Prereq: Honors standing, and Math 1075 (104) or above, ACT Mathematics Subscore of 22 or higher, or Math Placement Level R or better; or permission of instructor. Not open to students with credit for EarthSci 1121 (121), 121H, GeolSci 121, or 121H. GE nat sci phys course. NS Admis Cond course.			
<b>1151</b>	<b>Natural Hazards</b>	<b>U</b>	<b>3</b>
Occurrence and causes of earthquakes, volcanoes, and related hazards, and impact on climate, society, and history. Prereq: Not open to students with credit for EarthSci 151 or GeolSci 151. GE nat sci phys course.			
<b>1200</b>	<b>Introduction to Earth Science Laboratory</b>	<b>U</b>	<b>1</b>
Laboratory application of basic earth sciences principles to the identification and categorization of rocks and minerals, use and construction of maps to solve geological problems, and analysis of Earth's physical processes. Earth Science 1200 can be taken to fully satisfy the physical science GE requirement with lab when paired with ES 1105, 1108, 1121, 1151, 2203, 2204, 2205, or 2206(S). Prereq or concur: 1105, 1108, 1121, 1151, 2203, 2204, 2205, 2206, or 2206S. Not open to students with credit for 1100 or 2122. Not open to students with credit for EarthSc 1121 prior to Au 21. GE nat sci phys course.			
<b>1911</b>	<b>Climate Change: Mechanisms, Impacts, and Mitigation</b>	<b>U</b>	<b>4</b>
Examination of the basic science of climate change, of the ability to make accurate predictions of future climate, and of the implications for global sustainability by combining perspectives from the physical sciences, the biological sciences, and historical study. Team-taught with faculty members in EEOB and History. Prereq: Not open to students with credit for History 1911 or EEOB 1911. GE historical study and nat sci bio and nat sci phys course. Cross-listed in EEOB and History.			
<b>2000</b>	<b>Preparation for Thesis and Careers in the Earth Sciences</b>	<b>U</b>	<b>1</b>
In this course, students will be 1) exposed to the wide diversity of research in Earth Sciences and potential careers in the Earth Sciences and 2) prepared for the senior thesis, which is a requirement for Earth Sciences BS majors.			
<b>2122</b>	<b>Climate and Life Over Billions of Years on Earth</b>	<b>U</b>	<b>4</b>
Origin and evolution of Earth, including its physical, chemical and biological components; principles of geologic inference and their application to interpreting Earth. Prereq: Not open to students with credit for 1122. GE nat sci phys course.			
<b>2122H</b>	<b>Honors Climate and Life Over Billions of Years on Earth</b>	<b>U</b>	<b>4</b>
Origin and evolution of Earth, including its physical, chemical, and biological components; principles of geologic inference and their application to interpreting Earth. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 1122 or 1122H. GE nat sci phys course.			
<b>2155</b>	<b>Energy and Environment</b>	<b>U</b>	<b>3</b>
Introduces and examines the fundamentals of energy sources, energy use, energy efficiency, and resulting environmental implications of the various energy supplies. Prereq: Not open to students with credit for EarthSci 155 or ENR 2155 (155). GE nat sci phys course. Cross-listed in ENR.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group studies in various fields of the earth sciences. Prereq: Permission of instructor. Not open to students with 10 cr hrs of EarthSci 294 or GeolSci 294. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>2203</b>	<b>Environmental Geoscience</b>	<b>U</b>	<b>3</b>
Concepts and challenges of geological hazards and resources, environmental pollution, and health; regional and long-range planning; and global change and sustainability. Prereq: Not open to students with credit for EarthSci 203 or GeolSci 203. GE nat sci phys course. NS Admis Cond course.			
<b>2204</b>	<b>Exploring Water Issues</b>	<b>U</b>	<b>3</b>
Water on Earth, human impacts, and scientific and technological issues related to water resource development and conservation. GE nat sci phys course.			

<b>2205</b>	<b>The Planets</b>	<b>U</b>	<b>3</b>
Survey of the solar system's planets and moons with focus on surface environments, dynamics, and the ability to host life. GE nat sci phys course.			
<b>2206</b>	<b>Principles of Oceanography</b>	<b>U</b>	<b>3</b>
Introduction to the four basic disciplines of oceanography: geological, chemical, physical, and biological. Relevance of oceanography in contemporary issues. Prereq: Not open to students with credit for EarthSci 206 or GeolSci 206. GE nat sci phys course.			
<b>2206S</b>	<b>Principles of Oceanography (Service-Learning)</b>	<b>U</b>	<b>3</b>
Introduction to the four basic disciplines of oceanography: geological, chemical, physical, and biological. Relevance of oceanography in contemporary issues. Prereq: Not open to students with credit for 2206. GE nat sci phys course.			
<b>2210</b>	<b>Energy, Mineral Resources, and Society</b>	<b>U</b>	<b>3</b>
Geologic origin, world distribution, and uses of mineral resources critical to society; topics include mineral and fossil fuels, metallic ores, and industrial minerals. Prereq: Not open to students with credit for EarthSci 210 or GeolSci 210. GE nat sci phys course. NS Admis Cond course.			
<b>2245</b>	<b>Introductory Data Analysis for Earth and Environmental Sciences</b>	<b>U</b>	<b>4</b>
Data analysis using cooperative learning environment; topics include data visualization, error analysis, error propagation, probability distributions, hypothesis testing, ANOVA, linear regression, and spatial statistics. Prereq: Math 1151 or above, or concur: Math 1141, or permission of instructor. GE data only course.			
<b>2998</b>	<b>Undergraduate Research in Earth Sciences</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or creative activities in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>2998H</b>	<b>Honors Undergrad Research in Earth Sciences</b>	<b>U</b>	<b>1 - 10</b>
Honors undergraduate research or creative activities in variable topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 credit hours or 15 completions. This course is graded S/U.			
<b>3193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Special problems in any branch of the earth sciences for which the student has the proper qualifications. Prereq: Permission of instructor. Not open to students with 6 cr hrs of EarthSc 3193 (EarthSci 293) or GeolSci 293. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>3411</b>	<b>Water Security for the 21st Century</b>	<b>U</b>	<b>3</b>
Examine the major issues that are contributing to the decline in quantity and quality of global freshwater resources and the resultant environmental and societal impacts. Prereq: EarthSc 2245 (EarthSci 245) or other GEC or GE data only course, and Soph standing and above. Not open to students with credit for EarthSci 411 or GeolSci 411.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study of special topics in various fields of the earth sciences. Prereq: Permission of instructor. Not open to students with 10 cr hrs for EarthSc 4194 (EarthSci 294) or GeolSci 294. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4194H</b>	<b>Honors Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Group study of special topics in various fields of the earth sciences. Prereq: Honors standing, and permission of instructor. Not open to students with 10 cr hrs for EarthSc 4194 (EarthSci 294) or GeolSci 294. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4421</b>	<b>Earth Materials</b>	<b>U</b>	<b>3</b>
Internal and external symmetry of minerals; relationship of physical properties to crystal structure; introduction to modern and traditional identification methods; sight identification of about 30 minerals. Prereq or concur: Chem 1210. Not open to students with credit for EarthSci 421, GeolSci 221, or GeolSci 421.			
<b>4423</b>	<b>Introductory Petrology</b>	<b>U</b>	<b>3</b>
Origin, occurrence, association, and mineral composition of the common rocks; laboratory includes work by megascopic and microscopic methods. Prereq: 1100, 1121, or 1200; and prereq or concur: 4421.			
<b>4450</b>	<b>Water, Ice, and Energy in the Earth System</b>	<b>U</b>	<b>3</b>
Earth's energy budget and the transfer of water between reservoirs. Processes that regulate water transfer, common measurement approaches, and the importance of water in geological processes, global change, and as a resource. Prereq: 1100, 1105, 1108, 1121, 1151, 2203, 2204, 2205, Geog 3901, or 5900; and Chem 1210 or Physics 1250; or permission of instructor.			
<b>4501</b>	<b>Paleontology</b>	<b>U</b>	<b>4</b>
Fundamentals of paleontology and processes responsible for the fossil record. Application of paleontology to geology, evolutionary studies, paleoclimatology, paleoenvironmental reconstruction. Prereq: 1122 or 2122, and 3 cr hrs in Biological Sciences.			

<b>4502</b>	<b>Stratigraphy and Sedimentation</b>	<b>U</b>	<b>4</b>
Principles of, and procedures in, stratigraphy and sedimentation, illustrated by field and laboratory studies of sedimentary rocks. Prereq: 1100, 1121, or 1200; and 1122 or 2122.			
<b>4530</b>	<b>Structural Geology</b>	<b>U</b>	<b>4</b>
An introduction to the principles of rock deformation, the classification and physical origin of rock structures, and crustal tectonic processes. Prereq: 1100 or 1121 or 1200, and Physics 1250.			
<b>4560</b>	<b>Applied Geophysics</b>	<b>U</b>	<b>3</b>
Methods and techniques of pure and applied geophysics; geological interpretation of geophysical data. Prereq: 1100, 1105, 1108, 1121, 1151, 2203, or 2205; and Math 1141 or 1151 or above; and Physics 1250 or above.			
<b>4798</b>	<b>Environmental Sustainability in Costa Rica (Study Tour)</b>	<b>U</b>	<b>3</b>
Traditional lectures and a study tour explore the complex relationship between the use and conservation of natural resources and economic development in Costa Rica, especially the role of protected areas in ensuring the country's environmental sustainability. Within the Earth Sciences B.S. degree, this course can only be used in the Earth System Science subprogram to meet the requirements for credits taken outside Earth Sciences. This course cannot be used to meet any other requirements within the Earth Sciences B.S. Prereq: One college-level geology, ecology, biology, or environmental sciences course; and one college-level Spanish course (or excellent achievement in at least three years in high school Spanish); and permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in Earth Sciences</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or creative activities in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions for the combination of EarthSc 4998 (EarthSci 699) and GeolSci 699. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 10</b>
Honors undergraduate research or creative activities in variable topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4999.01</b>	<b>Undergraduate Research for Thesis in Earth Sciences</b>	<b>U</b>	<b>1</b>
Undergraduate research or creative activities in variable topics leading to completion of a B.S. thesis. To be taken during semester when thesis is turned in. Prereq: Sr standing, or permission of instructor. Not open to students with credit for 570.			
<b>4999.01H</b>	<b>Honors Undergraduate Research for Thesis in Earth Sciences</b>	<b>U</b>	<b>1</b>
A program of individual study arranged for students enrolled in the Honors Program with individual conferences and reports; requires presentation and oral defense of an honors thesis. Prereq: Honors standing, and permission of instructor.			
<b>4999.02</b>	<b>Undergraduate Research for Thesis in Earth Sciences</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research or creative activities in variable topics leading to completion of a B.S. thesis. Prereq: Sr standing, or permission of instructor. Not open to students with credit for EarthSci 570. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>4999.02H</b>	<b>Honors Undergraduate Research for Thesis in Earth Sciences</b>	<b>U</b>	<b>1 - 3</b>
A program of individual study arranged for students enrolled in the Honors Program with individual conferences and reports; requires presentation and oral defense of an honors thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5160</b>	<b>Geomicrobiology</b>	<b>U G</b>	<b>3</b>
The role of microorganisms in shaping our environment through mineralogical and geochemical processes at both local and global scales, in the present day and over geologic time periods. Prereq: Sr or Grad student in School of Earth Sciences, Department of Microbiology, Department of Civil, Environmental, and Geodetic Engineering, or School of Environment and Natural Resources. Not open to students with credit for Microbio 5160. Cross-listed in Microbio.			
<b>5189.01</b>	<b>Field Geology I</b>	<b>U G</b>	<b>3</b>
Concentrated training in the basic essentials of field observation and mapping; the work is done in central Utah, with headquarters in Ephraim. Requires full time of student. Prereq: 1100, 1121, or 1200; and 4530 or 6530; and permission of instructor.			
<b>5189.02</b>	<b>Field Geology II</b>	<b>U G</b>	<b>3</b>
Concentrated training in the basic essentials of field observation and mapping; the work is done in central Utah, with headquarters in Ephraim. Continuation of 5189.01. Requires full time of student. Prereq or concur: 4421, 4423, and 5189.01.			
<b>5189.05</b>	<b>Field Geology for Educators: Lake Erie</b>	<b>U G</b>	<b>2</b>
Application of geological principles and interpretation of Earth features in selected areas, with related research reports and teaching units. 7-day field trip. Prereq: EarthSc 1100 (EarthSci 100), GeolSci 100 or equiv; and permission of instructor. Not open to students with credit for EarthSci 583.03 or GeolSci 583.03. May not be used to satisfy BS, MS, or PhD degree requirements in EarthSc.			

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### 5189.06 Field Geology for Educators: Unspecified U G 1 - 4

Application of geological principles and interpretation of Earth features in selected areas, with related research reports and teaching units. Field trip and cl. Intended primarily for in-service and pre-service teachers and education majors.

Prereq: EarthSc 1100 (EarthSci100), GeolSci 100 or equiv; and permission of instructor. Not open to students with credit for EarthSci 583.04 or GeolSci 583.04. May not be used to satisfy BS, MS, or PhD degree requirements in EarthSc. Repeatable to a maximum of 8 cr hrs or 3 completions.

### 5191 Internship in the Earth Sciences U G 1 - 5

Combines experience in earth science policy or practice in a governmental agency, private industry, or nonprofit organization with analysis of that experience.

Prereq: Jr standing or above; and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

### 5191.01 Internship in the Earth Sciences, Natural History Museum U G 3

Formal, independent study and practical training in a natural history museum. Students become acquainted with the research, teaching, and outreach activities of a museum, and enhance their knowledge of resources, research methodologies, curatorial procedures, exhibit development, institutional culture, and work environment.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

### 5193.02 Individual Studies in Engineering Geology U G 1 - 3

Special problems in any branch of engineering geology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.03 Individual Studies in Earth and Planetary Sciences U G 1 - 3

Special problems in any branch of the earth and planetary sciences for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.04 Individual Studies in Field Geology U G 1 - 3

Special problems in any branch of field geology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.05 Individual Studies in Geochemistry U G 1 - 3

Special problems in any branch of geochemistry for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.06 Individual Studies in Geomorphology U G 1 - 3

Special problems in any branch of geomorphology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.07 Individual Studies in Geophysics U G 1 - 3

Special problems in any branch of geophysics for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.08 Individual Studies in Glaciology U G 1 - 3

Special problems in any branch of glaciology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions for the combination of EarthSc 5193 (EarthSci 693) and GeolSci 693. This course is graded S/U.

### 5193.09 Individual Studies in History of the Earth Sciences U G 1 - 3

Special problems in any branch of the history of the earth sciences for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions for the combination of EarthSc 5193 (EarthSci 693) and GeolSci 693. This course is graded S/U.

### 5193.10 Individual Studies in Hydrogeology U G 1 - 3

Special problems in any branch of hydrogeology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions for the combination of EarthSc 5193 (EarthSci 693) and GeolSci 693. This course is graded S/U.

### 5193.11 Individual Studies in Marine Geology, Limnology, and Oceanography U G 1 - 3

Special problems in any branch of marine geology, limnology, or oceanography for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions for the combination of EarthSc 5193 (EarthSci 693) and GeolSci 693. This course is graded S/U.

### 5193.12 Individual Studies in Paleobiology U G 1 - 3

Special problems in any branch of paleobiology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.13 Individual Studies in Petrology and Petrography U G 1 - 3

Special problems in any branch of petrology and petrography for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.14 Individual Studies in Remote Sensing and Geographic Information Systems U G 1 - 3

Special problems in any branch of remote sensing and GIS for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.15 Individual Studies in Sedimentation U G 1 - 3

Special problems in any branch of sedimentology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.16 Individual Studies in Stratigraphy U G 1 - 3

Special problems in any branch of stratigraphy for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.17 Individual Studies in Structural Geology U G 1 - 3

Special problems in any branch of structural geology for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.18 Individual Studies in Earth Science Education U G 1 - 3

Special problems in any branch of earth science education for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.19 Individual Studies Unspecified U G 1 - 3

Special problems in any branch of the earth sciences for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.20 Individual Studies in Global Change and Sustainability U G 1 - 3

Special problems in any topic in global change and sustainability for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.21 Individual Studies in Neotectonics U G 1 - 3

Special problems in any branch of neotectonics for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.22 Individual Studies in Mineralogy U G 1 - 3

Special problems in any branch of mineralogy for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5193.23 Individual Studies in Mineral Physics U G 1 - 3

Special problems in any branch of mineral physics for which the student has the proper qualifications.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions with 5193 (693) and GeolSci 693. This course is graded S/U.

### 5194 Group Studies U G 1 - 4

Group study of special topics in various fields of the earth sciences.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 15 completions for the combination of 5194 (694) and GeolSci 694.

### 5203 Geo-environment and Human Health U G 3

Examine geo-environmental processes that are contributing to human health degradation and the resultant societal impacts.

Prereq: EarthSc 2245 (EarthSci 245), or GE data only course, or equiv; and Soph standing or above; or permission of instructor.



**5205 Planetary Science U G 3**

A multidisciplinary approach to planetary science, integrating modern methods with the Earth and Astrophysical Sciences. Team-taught with faculty in Astronomy.  
Prereq: Math 1152 and a GE Data Analysis course, or permission of instructor. Not open to students with credit for Astron 5205. Cross-listed in Astron.

**5206 Advanced Oceanography U G 3**

Advanced study of geological, chemical, physical, and biological oceanography; their interactions; and their interactions with relevant current issues such as global change modeling, fisheries management, and energy exploration.  
Prereq: Jr standing or above, and enrollment in any STEM major; or Grad standing; or permission of instructor.

**5268 Soils and Climate Change U G 3**

Soil processes, abrupt climate change, trace gases and their properties, global C cycle, gaseous emissions, C-neutral fuels, carbon sequestration, Kyoto Treaty, trading of C credits.  
Prereq: Not open to students with credit for ENR 5268. Cross-listed in ENR.

**5310 Remote Sensing in the Earth Sciences U G 3**

The overall learning of geodetic (active) and passive remote sensing technologies and in-depth data analytics of their processing to apply to research in Earth sciences and engineering. This course is focused on students learning the theory and data processing methods to enable the use of contemporary satellite or airborne platform-equipped observations for science and engineering applications.  
Prereq: 1100, 1105, 1108, 1121, 1151, 2203, or 2205; and Math 1141 or 1151 or above; and Physics 1250 or above; or Grad standing; or permission of instructor.

**5501 Natural History Museum Data Curation U G 3**

An introduction to modern curatorial practice in a museum, with a particular emphasis on natural history collections. Use of public data repository including data acquisition and curation. Process physical specimens and other research materials, and make data available and searchable using electronic means.  
Prereq: Permission of instructor.

**5550 Geomorphology U G 4**

Investigation of the mechanics and chemistry of landscape development; interpretation of materials, processes, types, and evolution of landforms produced under diverse climates.  
Prereq: 1100 or 1121 or 1200, and 1122 or 2122; or permission of instructor.

**5580 Standards-Based Earth Science for Educators U G 1 - 5**

Examination of selected essential earth science topics through appropriate field, laboratory, and classroom activities.  
Prereq: 10 hrs in physical or biological sciences with 3 cr hrs of introductory geological sciences recommended; or permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. May not be used to satisfy BA, BS, MS, or PhD degree requirements in EarthSc.

**5602.02 Carbonate Depositional Systems II U G 2**

The field study of carbonates in a modern setting such as the Bahamas or southern Florida. 7-day field trip preceding or following the semester.  
Prereq: 5602.01 (602.01), or GeolSci 602.01; and permission of instructor. Not open to students with credit for 602.02 or GeolSci 602.02.

**5618 Advanced Historical Geology U G 2**

Principles of historical-geological analysis and interpretation of Earth's physical, chemical, and biological history.  
Prereq: EarthSc 4502 or 6502 (EarthSci 502), or GeolSci 502 or equivalent. Repeatable to a maximum of 12 cr hrs with 5618 (618) and GeolSci 618.

**5621 Introduction to Geochemistry U G 3**

Introduction to the chemistry of the solid Earth and hydrosphere describing the processes controlling the distribution of elements.  
Prereq: Chem 1220 or above; Sr standing in EarthSc (EarthSci) or related field; or permission of instructor. Not open to students with credit for 621 or GeolSci 621.

**5622 Stable Isotope Biogeochemistry U G 3**

Focus on theoretical and applied aspects of stable isotope biogeochemistry in the natural environment with emphasis on carbon, oxygen and nitrogen.  
Prereq: Sr or Grad standing in any science program; or permission of instructor. Not open to students with credit for EarthSci 622 or GeolSci 622.

**5627 Global Biogeochemical Cycles U G 3**

Examination of processes influencing the cycling of major elements in the environment: anthropogenic alteration of these cycles (e.g. nutrient addition, acid rain, greenhouse gases).  
Prereq: EarthSc 5621 (EarthSci 621) or GeolSci 621, or permission of instructor. Not open to students with credit for EarthSci 627 or GeolSci 627.

**5628 Environmental Isotope Geochemistry U G 3**

Use of natural and anthropogenic radioactivity and of natural variations in the isotope compositions of selected elements to study geochemical processes on the Earth's surface.  
Prereq: EarthSc 5621 (EarthSci 621) or GeolSci 621; or permission of instructor. Not open to students with credit for EarthSci 628 or GeolSci 628.

**5629 Principles of Petrology U G 3**

Application of physics, chemistry, and mathematics to the interpretation of igneous and metamorphic rocks.  
Prereq: Sr or Grad standing in EarthSc (EarthSci) or related field; or permission of instructor. Not open to students with credit for EarthSci 629 or GeolSci 629.

**5641 Geostatistics U G 3**

Applications of statistical methods to geoscience data, including linear error propagation, least-squares estimation, confidence interval estimation, analysis of variance. Role of computer graphics in data analysis.  
Prereq: Stat 5301 (528) or equiv, and Math 1152 (153) or above; or permission of instructor. Not open to students with credit for EarthSci 641, GeolSci 641, GeoSciM 5652 (GeodSciM 650 or 651), or 7763 (762).

**5644 Tectonic Evolution of Continents U G 3**

Survey of lithotectonic assemblages and structural associations in Archean, Proterozoic, and Phanerozoic orogenic terranes in relation to tectonic models for crustal evolution.  
Prereq: EarthSc 4423, 6423 (EarthSci 423), or GeolSci 423; and EarthSc 4502, 6502 (EarthSci 502), or GeolSci 502; and EarthSc 4530, 6530 (EarthSci 530), or GeolSci 530; or permission of instructor. Not open to students with credit for EarthSci 644 or GeolSci 644.

**5645 Advanced Structural Geology U G 4**

Mechanisms of deformation; dynamic and kinematic analysis of rock structures; field and laboratory methods of structural analysis.  
Prereq: EarthSc 4530 or 6530 (EarthSci 530), or GeolSci 530 or equivalent. Not open to students with credit for EarthSci 645 or GeolSci 645.

**5646 Geodynamics U G 3**

Application of mathematical and physical methods to the solution of geologic problems in heat flow, plate tectonics, interior dynamics, mountain building, ground-water flow, river mechanics.  
Prereq: EarthSc 4530 or 6530 (EarthSci 530), or GeolSci 530 or equivalent; Math 1152 (153) or above; and Physics 1250 (131) or above; or permission of instructor. Not open to students with credit for EarthSci 646 or GeolSci 646.

**5650 Glaciology U G 4**

The fundamental processes controlling ice flow, glacier mass balance and the interaction of glaciers and ice sheets with the solid earth, ocean and atmosphere. Observational and computational methods are also addressed.  
Prereq: EarthSci 4450 (EarthSci 450) or permission of instructor. Not open to students with credit for EarthSci 650 or GeolSci 650.

**5651 Hydrogeology U G 4**

Geologic and hydrologic factors controlling the occurrence, movement, storage, and chemical quality of surface water and ground water; exploration, evaluation, development and management of water resources.  
Prereq: 1100, 1105, 1108, 1121, 1151, 2203, or 2205; and Math 1152 or above.

**5655 Land Surface Hydrology U G 3**

Physical processes of land surface hydrology in the context of the global hydrologic cycle. Consideration of the processes and mechanisms responsible for water and energy fluxes, with examples from various river basins.  
Prereq: Math 1152 or above, and Physics 1250 or above.

**5661 Petroleum Geology U G 4**

The formation, accumulation, and trapping of oil and natural gas. Geologic source beds and traps; hydrocarbon flow; hydraulic properties of reservoirs and confining units; hydrocarbon chemistry; thin-section analysis of reservoir rocks.  
Prereq: 4502 or 6502; or permission of instructor.

**5663 Global Change and Sustainability in the Earth System U G 4**

Analysis of Earth systems, global environmental change and options for sustainability.  
Prereq: Sr or Grad standing, or permission of instructor. Not open to students with credit for EarthSci 663 or GeolSci 663.

**5675 Scanning Electron Microscopy U G 2**

Basic theoretical concepts and practical applications of scanning electron microscopy (SEM).  
Prereq: Chem 1210 or 1220, or equivalent; or permission of instructor.

**5680 Deep Earth Geophysics U G 3**

Methods and techniques for study of Earth's crust and interior, involving potential fields, seismology, and heat flow.  
Prereq: Math 1152 (153) or above; and Physics 1251 (133) or above. Not open to students with credit for EarthSci 680 or GeolSci 680.

**5687 Borehole Geophysics U G 3**

Principles and applications of borehole geophysical practices in the energy industry and in scientific drilling.  
Prereq: 1100, 1105, 1108, 1121, 1151, 2203, or 2205; and Math 1141 or 1151 or above; and Physics 1250 or above.

**5718 Aquatic Geochemistry U G 3**

Examination of the processes that control chemical equilibria in natural waters: acid/base reactions, metal complexation/speciation and oxidation-reduction processes. Intended for students in EarthSci, CivilEn, and the Grad EnvSci program.  
Prereq: Chem 1220 or above; and Math 1151 or above; or equivalents. Not open to students with credit for EnvEng 5718. Cross-listed in EnvEng.

## 136 Earth Science

<b>5719</b>	<b>Environmental Organic Geochemistry</b>	<b>U G</b>	<b>3</b>
Fate and distribution of organic pollutants in the environment including aqueous solubility, vapor pressure, environmental partition coefficients, and transformation reactions. Intended for students in EarthSc, CivilEn, and the Grad EnvSci program. Prereq: 5718, and Chem 4200; or permission of instructor. Not open to students with credit for EnvEng 5719. Cross-listed in EnvEng.			
<b>5751</b>	<b>Quantitative Reservoir Modeling</b>	<b>U G</b>	<b>4</b>
Principles of analytical and numerical techniques in modeling single- and multiphase flow in gas, oil, and water (aquifer) reservoirs. Development of Matlab code for two- and three-dimensional flow in porous media. Prereq: 2245 and Math 1152, or permission of instructor.			
<b>5780</b>	<b>Reflection Seismology</b>	<b>U G</b>	<b>4</b>
Basics of reflection seismic data processing and interpretation, using petroleum industry standard seismic processing software, hardware, and data. Prereq: 1100, 1105, 1108, 1121, 1151, 2203, or 2205; and Math 1141, or 1151 or above; and Physics 1250 or above.			
<b>5781</b>	<b>Gravity Exploration</b>	<b>U G</b>	<b>3</b>
Analytical treatment of concepts and methods of gravimetry; introductory theory of gravitational potential; geological interpretation of gravity data; gravity surveying. Prereq: Math 1152 (153) or above, or Grad standing; or permission of instructor. Not open to students with credit for EarthSci 781 or GeolSci 781.			
<b>5790.10</b>	<b>Antarctica Study Abroad Seminar</b>	<b>U G</b>	<b>1</b>
Pre-departure preparation for Antarctica study abroad. Provides general introduction to the country so that learning opportunities in-country will be maximized. Cannot be used to satisfy M.S. or Ph.D. requirements in Earth Sciences. Within the Earth Sciences B.S. degree, this course can only be used in the Earth System Science subprogram to meet the requirements for credits taken outside Earth Sciences. This course cannot be used to meet any other requirements within the Earth Sciences B.S. Prereq: Acceptance into the Antarctica Study Abroad program. Not open to students with credit for ENR 5790.10. Cross-listed in ENR.			
<b>5797.10</b>	<b>Study at a Foreign Institution: Antarctica</b>	<b>U G</b>	<b>3</b>
Two weeks of field studies in Antarctica and Ushuaia, Argentina. This course is a collaborative effort between Ohio State, American Universities International Programs, University of Canterbury, New Zealand, and Gateway Antarctica: Centre for Antarctic Studies and Research. Cannot be used to satisfy M.S. or Ph.D. requirements in Earth Sciences. Within the Earth Sciences B.S. degree, this course can only be used in the Earth System Science subprogram to meet the requirements for credits taken outside Earth Sciences. This course cannot be used to meet any other requirements within the Earth Sciences B.S. Concur: 5790.10. Not open to students with credit for ENR 5797.10. Cross-listed in ENR.			
<b>6502</b>	<b>Stratigraphy and Sedimentation</b>	<b>G</b>	<b>4</b>
Principles of, and procedures in, stratigraphy and sedimentation, illustrated by field and laboratory studies of sedimentary rocks. Prereq: EarthSc 1121 (EarthSci 121 or GeolSci 121) and 1122 (EarthSci 122 or GeolSci 122). Not open to students with credit for EarthSc 4502 (EarthSci 502 or GeolSci 502).			
<b>6530</b>	<b>Structural Geology</b>	<b>G</b>	<b>4</b>
An introduction to the principles of rock deformation, the classification and physical origin of rock structures, and crustal tectonic processes. Prereq: 1121 (EarthSci 121 or GeolSci 121), and Physics 1250 (131) or above. Not open to students with credit for 4530 (EarthSci 530 or GeolSci 530).			
<b>6560</b>	<b>Applied Geophysics</b>	<b>G</b>	<b>3</b>
Methods and techniques of pure and applied geophysics; geological interpretation of geophysical data. Prereq: 1121 (EarthSci 121 or GeolSci 121), Math 1151 (151) or above, and Physics 1250 (131) or above. Not open to students with credit for 4560 (EarthSci 560 or GeolSci 560), or GeolSci 280.			
<b>6750</b>	<b>Paleoclimatology</b>	<b>G</b>	<b>4</b>
Examination of climate records in ice, lake, and marine cores, tree rings, corals and historical records for a global perspective of Quaternary climate change. Prereq: Grad standing or permission of instructor. Not open to students with credit for EarthSci 750 or GeolSci 750.			
<b>7998</b>	<b>Research in the Earth Sciences</b>	<b>G</b>	<b>1 - 12</b>
Graduate-level research. Prereq: Grad standing in EarthSc or GeodSci. Repeatable. This course is graded S/U.			
<b>7999</b>	<b>Research for Thesis in the Earth Sciences</b>	<b>G</b>	<b>1 - 12</b>
Graduate-level research for thesis purposes only. Prereq: Grad standing in EarthSc or GeodSci. Repeatable. This course is graded S/U.			
<b>8800</b>	<b>Seminar in Stratigraphy and Basin Analysis</b>	<b>G</b>	<b>1 - 2</b>
Consideration of current and classical problems and procedures in biostratigraphic and lithostratigraphic analysis and synthesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8801</b>	<b>Seminar in Sedimentology</b>	<b>G</b>	<b>1 - 2</b>
Consideration of sedimentation and the structures, petrography, depositional environments, and paleontologic interpretation of sedimentary rocks. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			

<b>8821</b>	<b>Seminar in Geochemistry</b>	<b>G</b>	<b>1 - 2</b>
Selected topics in applications of chemistry to earth science problems; geochronology, geochemistry, geochemical cycles, and cosmochemistry. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8822</b>	<b>Seminar in Mineralogy, Mineral Physics, and Petrology</b>	<b>G</b>	<b>1 - 2</b>
Selected topics in optical mineralogy and igneous, sedimentary, and metamorphic petrology. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8850</b>	<b>Seminar in Glaciology and Geomorphology</b>	<b>G</b>	<b>1 - 3</b>
Selected topics in glaciology, glacial history, and geomorphology. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8851</b>	<b>Seminar in Hydrogeology and Oceanography</b>	<b>G</b>	<b>1 - 2</b>
Topics in hydrogeology and oceanography, such as ground-water hydrology and hydraulics, basin management, water resources, paleohydrology, reef and atoll development, or paleo-oceanography. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8870</b>	<b>Proposal Writing and Scientific Communication in Earth Science Is Your Job</b>	<b>G</b>	<b>2</b>
Development of scientific communication skills including writing of publications and proposals, oral and poster presentations, and research ethics. Prereq: Grad standing in Earth Sciences or Geodetic Sciences, or permission of instructor.			
<b>8878</b>	<b>Seminar in Geophysics</b>	<b>G</b>	<b>1 - 2</b>
Investigation and discussion of recent developments in geophysics, including exploration geophysics, glaciology, solid-earth geophysics, paleomagnetism, tectonics, or engineering evaluation. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8898</b>	<b>Colloquium in the Earth Sciences</b>	<b>G</b>	<b>1</b>
Presentations and discussions of current research in the earth sciences provided by visitors, faculty and students. Prereq: Grad standing in EarthSci or GeodSci. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>8998</b>	<b>Research in the Earth Sciences</b>	<b>G</b>	<b>1 - 12</b>
Graduate-level research. Prereq: Grad standing in EarthSci or GeodSci. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research in the Earth Sciences</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Prereq: Grad standing in EarthSci or GeodSci. Repeatable. This course is graded S/U.			

## East Asian Languages and Literatures

<b>1231</b>	<b>East Asian Humanities</b>	<b>U</b>	<b>3</b>
Introduction to the contemporary and traditional cultures of China, Korea, and Japan taught through readings, films, and demonstrations. Prereq: Not open to students with credit for 131. GE cultures and ideas and diversity global studies course.			
<b>2284</b>	<b>Tea Culture in East Asia</b>	<b>U</b>	<b>3</b>
Approaches tea from multiple perspectives, including, but not limited to, history, geography, agriculture, commerce, health, nutrition, arts and crafts, folklore, and transmission of everyday cultural practices. Classes include lectures, discussion, and a laboratory of preparation and tasting of a variety of tea. GE cultures and ideas course.			
<b>3223</b>	<b>The Buddhist Tradition</b>	<b>U</b>	<b>3</b>
History and structure of Buddhism from founding to present in South, Southeast, and East Asia. Emphasis on rituals, beliefs, and local and regional variations. RelStds 2370 recommended. Prereq: Not open to students with credit for 323, CompStd 3673 (323), or RelStds 3673 (323). Cross-listed in RelStds 3673.			
<b>3405</b>	<b>Introducing East Asia through Martial Arts Cinema</b>	<b>U</b>	<b>3</b>
Examines martial arts films of East Asia, focusing on their social & cultural functions. Draws upon the philosophical, cultural and historical background to depict this unique genre of imagination. Analyzes the aspiration for personal freedom and social justice and the longing for heroes amidst losing battles for liberty in authoritarian societies. GE VPA and diversity global studies course.			
<b>3446</b>	<b>Asian American Film</b>	<b>U</b>	<b>3</b>
Introduction to Asian American cinema from the 1960s to the present, including documentaries, feature films, and experimental films. Prereq: Not open to students with credit for 346. GE VPA course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Directed study to meet individual research needs of students in East Asian studies. Not a substitute for regular language courses. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group investigation of issues in East Asian studies. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			

<b>4200</b>	<b>Topics in East Asian Culture</b>	<b>U</b>	<b>3</b>
In-depth exploration of a theme, issue, or question in East Asian culture broadly conceived. Topics vary. Prereq: 1231; or Chinese 2231, Japanese 2231, or Korean 2231; or Chinese 2232; or Chinese 2451, Japanese 2451, or Korean 2451; or Japanese 2452; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5310</b>	<b>Strategies for Performance-Oriented Language Learning: Practicum</b>	<b>U G</b>	<b>3</b>
An overview of language-learning strategies and practice in applying them to learning of East Asian languages. Prereq: Chinese 1102.01, 1102.02, or 4 credits of 1102.51; or Japanese 1102.01, 1102.02, or 4 credits of 1102.51; or Korean 1102.01, 1102.02, or 4 credits of 1102.51; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5383</b>	<b>Scripts of East Asia</b>	<b>U G</b>	<b>3</b>
A critical survey of writing systems that use Chinese characters, popular and scholarly myths about them, and their impact on the history of ideas. Prereq: Soph standing in Chinese, Japanese, or Korean, or permission of instructor. Not open to students with credit for 683.			
<b>5475</b>	<b>Women Writers, Culture and Society in East Asia</b>	<b>U G</b>	<b>3</b>
Close examination of representative works of major women writers from China, Japan, and Korea in the cultural and ideological context of each country. No knowledge of East Asian languages is required. All reading materials are in English. Prereq: Chinese 2231, 2232, Japanese 2231, or Korean 2231, or at least one literature course at the college level, or permission of instructor. Not open to students with credit for 675.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>3 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Admission to specific study abroad program that accepts this course. Repeatable to a maximum of 24 cr hrs or 8 completions.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Individual investigation of East Asian cultures, languages, and literatures. Prereq: Permission of department chairperson. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group investigation of issues in East Asian studies. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>7700</b>	<b>Learning East Asian Languages in Cross-Cultural Contexts: College Level</b>	<b>G</b>	<b>1 - 3</b>
Principles and practices of designing instruction and assessing performances in an East Asian language as a foreign language at post-secondary level American academic institutions. Concurrent registration in 7703 and 7704 recommended. Su Sem. Prereq: High-level competence in target East Asian language, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. FL Admis Cond course.			
<b>7701</b>	<b>Pedagogical Syntax for East Asian Languages</b>	<b>G</b>	<b>3</b>
Training in the presentation of grammar in East Asian language classes; special attention given to problems of translating linguistic studies into teachable units. Au, Sp Sems. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7702</b>	<b>Materials Preparation for East Asian Languages</b>	<b>G</b>	<b>3</b>
Preparation of materials for teaching Chinese, Japanese, and Korean. Emphasis on the special problems faced by English-speaking students in learning these languages. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>7703</b>	<b>Presentation of East Asian Languages and Cultures</b>	<b>G</b>	<b>1 - 2</b>
Preparation and presentation of curriculum and syllabus for East Asian language program and adaptation of learning materials. Concurrent registration in 7700 and 7704 recommended. Su Sem. Prereq: High-level competency in the target East Asian language, and permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions. FL Admis Cond course.			
<b>7704</b>	<b>Teaching Practicum in East Asian Languages</b>	<b>G</b>	<b>1 - 5</b>
Training as a classroom teacher through practice teaching to students and the observation of classes taught by trainees and master teachers. Prereq: High-level competence in an East Asian language, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 3 completions. FL Admis Cond course.			
<b>7705</b>	<b>Seminar in the Learning of East Asian Languages and Cultures</b>	<b>G</b>	<b>3</b>
Critical analysis of insights and theories from various disciplines relevant to the pedagogy of East Asian languages and cultures. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>7897</b>	<b>Introduction to Graduate-level East Asian Studies</b>	<b>G</b>	<b>1</b>
The origins, development and current state of East Asian Area Studies in the U.S., including its relationship to other intellectual disciplines. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 797, History 7405 (797), or HistArt 6801 (797). This course is graded S/U. Cross-listed in History 7405 and HistArt 6801.			

## East Asian Languages and Literatures 137

<b>8701</b>	<b>Teaching East Asian Languages at the College Level</b>	<b>G</b>	<b>3</b>
Techniques of teaching college-level East Asian languages; effective use of teaching, testing, and laboratory materials; observation of a variety of language classes. Au Sem. Prereq: Permission of instructor. Not open to students with credit for 801.			
<b>8870</b>	<b>Research Presentations in East Asian Languages and Literatures</b>	<b>G</b>	<b>1 - 3</b>
Research presentations and discussions of specific problems in East Asian languages and literatures. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			

## East European Languages and Literatures

<b>5627</b>	<b>Reading Course in a Balkan or East European Language</b>	<b>U G</b>	<b>3</b>
Fundamentals of grammar and vocabulary needed for reading a non-Slavic language of Eastern or East Central Europe or the Balkans (e.g., Albanian, Romanian, Estonian, Hungarian, Latvian, or Lithuanian). Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
Opportunity to study at an educational institution in East Central, Southeastern, or Eastern Europe and receive OSU credit. Students pay OSU fees, any fees in excess of tuition, travel & subsistence costs. Prereq: Permission of dept chairperson. Repeatable to a maximum of 36 cr hrs or 9 completions. This course is progress graded.			

## Economics

<b>1100.01</b>	<b>Current Economic Events in Historical Perspective</b>	<b>U</b>	<b>3</b>
Introduction to economic analysis; historical background for interpreting current economic events. Discuss current issues in a historical context, including topics like taxes and unemployment. A one-course introduction to economics. Prereq: Not open to students with credit for 110.01. GE soc sci human, nat, and econ resources course.			
<b>1100.02</b>	<b>Freakonomics</b>	<b>U</b>	<b>3</b>
Discuss current social problems and issues within an economics framework, including topics such as job discrimination and integration. A one-course introduction to economics. Prereq: Not open to students with credit for 110.02. GE soc sci human, nat, and econ resources course.			
<b>2001.01</b>	<b>Principles of Microeconomics</b>	<b>U</b>	<b>3</b>
Introduction to economic theory: supply and demand for goods, services, and factor inputs; market structure; international trade, the distribution of income. First required course for students planning to take 4000-level courses in Econ. Prereq: Not open to students with credit for 2001.02, 2001.03H, 200, 200H, or AEDEcon 2001 (200). This course is available for EM credit. GE soc sci human, nat, and econ resources course. SS Admis Cond course.			
<b>2001.03H</b>	<b>Principles of Microeconomics</b>	<b>U</b>	<b>3</b>
An advanced introduction to economic theory: supply and demand for goods, services, and factor inputs; market structure; international trade, the distribution of income. First required course for students planning to take 4000-level courses in econ. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2001.01, 2001.02 (200), or 200H, and AEDEcon 2001 (200) or 2001H (200H). GE soc sci human, nat, and econ resources course.			
<b>2002.01</b>	<b>Principles of Macroeconomics</b>	<b>U</b>	<b>3</b>
Introduction to the theory of national income determination; economic fluctuations; money; government policy; international economics. Prereq: Not open to students with credit for 2002.02, 2002.03H, 201, or 201H. This course is available for EM credit. GE soc sci orgs and politics course.			
<b>2002.03H</b>	<b>Principles of Macroeconomics</b>	<b>U</b>	<b>3</b>
An advanced introduction to the theory of national income determination; economic fluctuations; money; government policy; international economics. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2002.01, 2002.02 (201, 201H). GE soc sci orgs and politics course.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Current problems not covered in other courses. Credit for Econ 294 counts against hour cap. Prereq: 2001.01, 2001.02, 2001.03H (200 or 200H), or equiv. Repeatable to a maximum of 7 cr hrs or 2 completions.			
<b>2367.02</b>	<b>Current Economic Issues in the United States</b>	<b>U</b>	<b>3</b>
Study of problems currently facing the U.S. economy. Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), or equiv, and English 1110 (110). Not open to students with credit for 367.02. GE writing and comm: level 2 and soc sci orgs and politics course.			

## 138 Economics

### 3001 Economy, Polity, and Community U 3

Examines how different ways of thinking about human nature shape our understanding of philosophy, politics and economics.  
Prereq: Econ 2001.XX or 2002.01 or 2002.03H; and Philos 2400 or PolitSc 2400 or 2400H; and Econ 5001 or Philos 2500 or 5540 or PolitSc 4553 or 4553H; and Philos 3300; and Econ 3400 or IntStds 3400 or PolitSc 3780 or 3780H; and PolitSc 4280 or 4380. Not open to students with credit for Philos 3001 or PolitSc 3001. Cross-listed in Philos and PolitSc.

### 3002 Tradition, Progress, and Utopia U 3

Examines how different ways of thinking about social and political change shape our understanding of philosophy, and economics.  
Prereq: Econ 2001.XX or 2002.01 or 2002.03H; and Philos 2400 or PolitSc 2400 or 2400H; and Econ 5001 or Philos 2500 or 5540 or PolitSc 4553 or 4553H; and Philos 3300; and Econ 3400 or IntStds 3400 or PolitSc 3780 or 3780H; and PolitSc 4280 or 4380. Not open to students with credit for Philos 3002 or PolitSc 3002. Cross-listed in Philos and PolitSc.

### 3048 Ethics and Social Responsibility in Economic Life U 3

Examines the role of ethical norms and social constraints in determining economic outcomes.  
Prereq: At least one of these courses, 1100.01 (110.01), 1100.02 (110.02), 1100.03 (110.03), 2001.01, 2001.02 (200), 2001.03H (200H), 2002.01 2002.02 (201), or 2002.03H (201H), is recommended. Not open to students with credit for 348. GE soc sci indiv and groups course.

### 3400 The Analysis and Display of Data U 3

Introduction to the analysis of data. Topics include sampling, data collection, probability, inference, random variables, display of data, correlation, and analysis of variance. This course does not count toward a course elective for Econ majors.  
Prereq: Not open to students with credit for 4400 (444), 5410 (641), 5420 (642), 443, IntStds 3400 (443), Stat 1430 (133), 1450 (145), 2450 (245) or AEDEcon 2005 (205). GE data only course. Cross-listed in IntStds.

### 3820 The Economics of Gender in Labor Markets U 3

Application of economic analysis to the evolution and economic condition of women and men in the labor force; occupational distribution and segregation; wage gap; the glass ceiling.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or equiv. Not open to students with credit for 482. GE diversity soc div in the US course.

### 3900.01S The Other Side of the Border: Immigration Economics U 3

This is a service-learning opportunity with Esperanza International in Tijuana, Mexico. The course will introduce micro and macroeconomic issues related to immigration. This case study will focus on the opportunity costs for immigrants, the effects of the flow of money, and the loss of labor and human capital on economic growth. Students will work with the immigrant community.  
Prereq: 2001.01, 2001.02, 2002.01 or 2002.02, or AEDEcon 2001. GE service learning course.

### 4001.01 Intermediate Microeconomic Theory U 3

Theory of consumer behavior; theory of the firm; costs and production; factor price determination; general equilibrium.  
Prereq: 2001.01, 2001.02, or 2001.03H, and 2002.01, 2002.02, or 2002.03H, or equiv. Not open to students with credit for 4001.02 or 4001.03.

### 4001.02 Intermediate Microeconomic Theory U 3

Theory of consumer behavior; theory of the firm; costs and production; factor price determination; general equilibrium. Designates a calculus-based version.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), and Math 1131 (132), 1151 (151), 1152 (152 and 153), 1161 (161 and 162), 2182H (263H), or 4181H (190H) or equiv; or permission of instructor. Not open to students with credit for 4001.01 (501.01 and 501.02) or 4001.03H.

### 4001.03 Intermediate Microeconomic Theory U 3

Theory of consumer behavior; theory of the firm; costs and production; factor price determination; general equilibrium. Designates an advanced calculus-based version.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), and Math 1131 (132), 1151 (151), 1152 (152 and 153), 1161 (162 and 161), 2182H (263H), or 4181H (H190), or equiv, or permission of instructor. Not open to students with credit for 4001.01 (501.01) or 4001.02 (501.02).

### 4002.01 Intermediate Macroeconomic Theory U 3

Analysis of the determinants of national output; income and employment levels; theory of economic growth and progressive equilibrium in an economy.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201 or 201H), or 2002.03H, or equiv. Not open to students with credit for 4002.02 (502.01 or 502.02) or 4002.03.

### 4002.02 Intermediate Macroeconomic Theory U 3

Analysis of the determinants of national output; income and employment levels; theory of economic growth and progressive equilibrium in an economy. Designates a calculus-based version.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), and Math 1131 (132) or 1151 (151), 1152 (152 and 153), 1161 (161 and 162), 2182H (263H), or 4181H (190H), or equiv; or permission of instructor. Not open to students with credit for 4002.01 (502.01 or 502.02) or 4002.03.

### 4002.03 Intermediate Macroeconomic Theory U 3

Analysis of the determinants of national output; income and employment levels; theory of economic growth and progressive equilibrium in an economy. Designates an advanced calculus-based version.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), and Math 1152 (152 and 153), 1161 (161 and 162), 2182H (263H), or 4181H (190H), or equiv; or permission of instructor. Not open to students with credit for 4002.01 (502.01) or 4002.02 (502.02).

### 4050 Experimental Economics U 3

Introduction to economics as an experimental social science. Students participate in and study results of economic experiments dealing with markets, individual decision making, and a broad array of game theoretic economic models.  
Prereq: 2001.01, 2001.02, or 2001.03H or equiv.

### 4050H Experimental Economics U 3

Introduction to economics as an experimental social science. Students participate in and study results of economic experiments dealing with markets, individual decision making, and a broad array of game theoretic economic models.  
Prereq: 4001.01 or 4001.02 or 4001.03, and Stat 1450 or 2450. Not open to students with credit for 4050.

### 4130 World Economic Development in Historical Perspective U 3

A survey of economic development from the middle ages through the 20th century, emphasizing Europe, Asia and Africa.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or 2002.01, 2002.02 (201) or 2002.03H (201H), or equiv. Not open to students with credit for 5130 (614), or 515. GE historical study and diversity global studies course.

### 4140 Economic History of the Americas U 3

A survey of economic development in the Americas emphasizing the United States from colonial times to the 20th century.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or 2002.01, 2002.02 (201), or 2002.03H (201H), or equiv. Not open to students with credit for 5140 (613) or 516. GE historical study and diversity global studies course.

### 4191 Internship U 1 - 6

Allows students to apply knowledge from their economics courses and learn from hands on experience in approved positions. Applies toward an Econ 4000-level elective; 3 credit hours maximum toward major.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), or equiv; and Jr or Sr standing; and enrollment in Econ major; and permission of department. Not open to students with maximum qtr or hrs in 589. Repeatable to a maximum of 6 or hrs or 2 completions. This course is graded S/U.

### 4194 Group Studies U 1 - 10

Intermediate current problems not covered in other courses.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H). Credit taken as 594 counts toward hour cap. Repeatable to a maximum of 10 or hrs or 3 completions.

### 4200 Money and Banking U 3

Organization, operation, and economic significance of our monetary and banking system; special reference to current conditions and problems. Students intending to take 5200 are encouraged to take it instead.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), or equiv. Not open to students with credit 4200H (520H), 5200, or 520.

### 4300 Government Finance in the American Economy U 3

Analysis of fiscal institutions and decision-making in the public sector of the American economy; budget planning and execution; taxation, debt, and fiscal policy.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or equiv. Not open to students with credit for 530.

### 4310 Local Public Finance U 3

Financing public services by state/local governments. The fiscal relationship between state/local governments and the federal government. Apply techniques of economic analysis to policy issues.  
Prereq: 4300 (530), or PubAfrs 7120 (730), or equiv. Not open to students with credit for 531, or PubAfrs 4310 (531). Cross-listed in PubAfrs.

### 4320 Public Expenditure and Cost-Benefit Analysis U 3

Economics of public choice, public goods, non-market allocations, collective decision-making, and net-benefit maximization for policy majors; case studies and empirical analysis of public choice problems for policy analysts. Does not count towards units in the economics major.  
Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or equiv, and enrollment in JGSPA major. Not open to students with credit for 4300, 4310, or 532.

### 4400 Elementary Econometrics U 3

Basic linear regression analysis with applications; hypothesis testing and model specification.  
Prereq: 3400, IntStds 3400, Stat 1430 (133), 1450 (145), 2450 (245), or AEDEcon 2005 (205), or equiv. Not open to students with credit for 5410 (641), 5420 (642), or 444.

<b>4537</b>	<b>Middle Eastern Economic Development</b>	<b>U</b>	<b>3</b>
Introduction to current economic issues facing the Middle East; similarities and differences in Middle Eastern countries' growth, inflation, unemployment, fiscal and monetary policy, imports, exports, foreign debt and exchange rate policy. Prereq: 2001.01, 2001.02 (200), 2001.03H (200H), or AEDEcon 2001 (200), and 2002.01, 2002.02 (201), or 2002.03H (201H), or equiv. Not open to students with credit for 537, AEDEcon 4537 (537), 437, IntStds 4537 (537), or 437. Cross-listed in AEDEcon and IntStds.			
<b>4553</b>	<b>Economics of Population</b>	<b>U</b>	<b>3</b>
Using economic principles to analyze population growth, fertility, mortality, mating, dating, marriage, teen pregnancy, divorce, and migration. Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or 2002.01, 2002.02 (201), or 2002.03H (201H). Not open to students with credit for 553.			
<b>4560</b>	<b>Cooperation and Conflict in the Global Economy</b>	<b>U</b>	<b>3</b>
The economic, social, and political bases for and responses to increasing global economic integration. Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H), or equiv. Not open to students with credit for 4560H (556H), 556, IntStds 4560 (556), or 4560H (556H). Cross-listed in IntStds.			
<b>4597.01</b>	<b>Issues of the Underground Economy</b>	<b>U</b>	<b>3</b>
Focuses on the informal sector of the underground economy: illegal drugs, arms sales and human trafficking. Applies economic reasoning. Recommended prereqs: 2001.01, 2001.02 (200), 2001.03H (200H), and 2002.01, 2002.02 (201), or 2002.03H (201H). Prereq: Jr standing and above. Not open to students with credit for 597.01. GE cross-disciplinary seminar course.			
<b>4700</b>	<b>Government and Business</b>	<b>U</b>	<b>3</b>
Economic and legal aspects of government regulation of business in the United States; philosophies and concepts of public control; contemporary problems. Students planning on taking 5700 are encouraged to take it instead. Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or equiv. Not open to students with credit for 5700 (670), or 570.			
<b>4700H</b>	<b>Government and Business</b>	<b>U</b>	<b>3</b>
Economic and legal aspects of government regulation of business in the United States: philosophies and concepts of public control; contemporary problems. Prereq: Honors standing, and 2001.01, 2001.02, 2001.03H, 4001.01, 4001.02 or 4001.03, and Math 1151. Not open to students with credit for 4700 (570) or 5700 (670).			
<b>4797.01</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Prereq: Permission of dept chairperson. Repeatable to a maximum of 30 or hrs or 30 completions. This course is graded S/U.			
<b>4797.02</b>	<b>Islamic Banking and Finance</b>	<b>U</b>	<b>3</b>
The course covers Islamic banking and finance in theory and in practice. Including a study abroad component to Malaysia for students to experience Islamic banking and finance in practice, students will be prepared to: 1-Understand the relation between culture/religion and the economy 2-Better understand Islamic finance vs. conventional finance 3-Learn the challenges of Islamic finance in practice. Prereq: 2001.01, 2001.02, 2001.03H, 2002.01, 2002.02, or 2002.03H, or equiv.			
<b>4800</b>	<b>Labor Economics and Industrial Relations</b>	<b>U</b>	<b>3</b>
Survey of the field of labor economics; trade unionism, collective bargaining; wage determination, employment, unemployment; labor legislation. Students planning on taking 5850 are encouraged to take it instead. Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or equiv. Not open to students with credit for 5850 (685) or 580.			
<b>4830</b>	<b>Economics of Sports</b>	<b>U</b>	<b>3</b>
Analysis of economic and business aspects of sports teams and their strategic interactions in sports markets. Prereq: 2001.01, 2001.02 (200), or 2001.03H (200H), or equiv. Not open to students with credit for 583.			
<b>4831</b>	<b>Sports Data Analytics and Economic Analysis</b>	<b>U</b>	<b>3</b>
An introduction to basic data analysis methods used by economists to explain economic reasoning in the sport industry and associated markets. Prereq: 2001.01, 2001.02, 2001.03H, AEDEcon 2001, or 2001H.			
<b>4960H</b>	<b>Honors Seminar in Economics</b>	<b>U</b>	<b>3</b>
Prepares students to write an undergraduate thesis; group discussion of research problems, methods, and strategies. Prereq: Honors standing, and 4001.01, 4001.02, or 4001.03, and 4400, 5410, or 5420; or permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in Economics</b>	<b>U</b>	<b>1 - 6</b>
Directed research for an Economics major; collection and analysis of data and information for a research project. Prereq: 4001.01 (501.01), 4001.02 (501.02), or 4001.03, and 4002.01 (502.01), 4002.02 (502.02), or 4002.03, or equiv, and permission of instructor. Not open to students with credit for 4998H or 699. This course is graded S/U.			

<b>4998H</b>	<b>Honors Research in Economics</b>	<b>U</b>	<b>1 - 6</b>
Directed research for an economics major; collection and analysis of data and information for a research project. Prereq: Honors standing; and 4001.01 (501.01), 4001.02 (501.02), or 4001.03, and 4002.01 (502.01), 4002.02 (502.02), or 4002.03, or equiv; and permission of instructor. Not open to students with greater than 9 or hrs in 4998 or max credit in 699. Repeatable to a maximum of 10 or hrs or 2 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 5</b>
A program of study arranged for each student, with individual conferences and reports, to write a senior thesis. At least two semesters are required of candidates for the degree with distinction in economics. Prereq: At least half of the Econ courses taken and an average of B in the remainder, and Sr standing, and permission of instructor. Not open to students with greater than 9 hours credit for 4999H (699) or max credit in 783H. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 5</b>
A program of study arranged for each student, with individual conferences and reports, to write a senior thesis. At least 2 sems required for distinction in econ. Failure to receive a mark of S in this course is a disqualification for special honors. Prereq: Honors standing, and a grade of A in at least half of the Econ courses taken, and an average of B in the remainder, and Sr standing, and permission of instructor. Not open to students with credit for 4999 (783H). Credit in 783H counts toward hour cap. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>5001</b>	<b>Game Theory in Economics</b>	<b>U G</b>	<b>3</b>
Analysis of behavior in strategic situations - when a person or firm's best action depends on what others do. Prereq: 4001.01 (501.01), 4001.02 (501.02), or 4001.03, and Math 1131 (132), 1151 (151 and 152), 1152 (153), 1161 (161 and 162), or 2182H (263H), or equiv. Not open to students with credit for 601.			
<b>5130</b>	<b>Economic History of Western Europe</b>	<b>U G</b>	<b>4</b>
Survey of economic development of Europe from pre-industrialization to current globalization. Emphasis on critical analysis of long-run factors in economic growth. Prereq: 4400 (444), 5410 (641), or Stat 2450 (245), and Econ 4001.01 (501.01), 4001.02 (502.02), or 4001.03, and 4002.01 (502.01), 4002.02 (502.02), or 4002.03, or equiv; or Grad standing. Not open to students with credit for 614.			
<b>5140</b>	<b>Economic History of the United States</b>	<b>U G</b>	<b>4</b>
General survey from discovery of America to present; European economic background; westward movement and its effects; development of economic institutions in the United States. Prereq: 4400 (444), 5410 (641), 4001.01 (501.01), 4001.02 (502.02), 4001.03, and 4002.01 (502.01), 4002.02 (502.02), or 4002.03, or Stat 2450 (245), or equiv; or Grad standing. Not open to students with credit for 613.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 10</b>
Advanced readings in economics and related fields. Prereq: Jr standing or higher; and an average of B or better in all econ courses; and a CPHR of 3.00 or above. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 5</b>
Advanced current problems not covered in other courses. Prereq: 4001.01 (501.01), 4001.02 (501.02), or 4001.03, or equiv. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>5250</b>	<b>National and International Money Markets</b>	<b>U G</b>	<b>3</b>
Organization, functions, and control of money markets and their submarkets; flow of funds in these markets and investment policies of market participants. Prereq: 4400 (444), or 5410 (641), and 4001.01 (501.01), 4001.02 (501.02), or 4001.03, and 4002.01 (502.01), 4002.02 (502.02), or 4002.3, or Stat 2450 (245), or equiv. Not open to students with credit for 625.			
<b>5261</b>	<b>Financial Economics I</b>	<b>U G</b>	<b>3</b>
Examination of the evolution of and economic issues facing financial markets, financial institutions, and financial market participants. Does not count as course credit towards the completion of a business major. Prereq: 4001.01, 4001.02, or 4001.03, and 4002.01, 4002.02, or 4002.03, and Math 1151, 1152, 1161, or 2182H, or equiv.; or Grad standing.			
<b>5262</b>	<b>Financial Economics II</b>	<b>U G</b>	<b>3</b>
Examination of academic literature and econometric analysis of topics involving financial markets, financial institutions, and financial market participants. Does not count as course credit towards the completion of a business major. Prereq: 4001.01, 4001.02, or 4001.03, and 4002.01, 4002.02, or 4002.03, and 5261, and Math 1151, 1152, 1161, or 2182H, or equiv.; or Grad standing.			
<b>5410</b>	<b>Econometrics I</b>	<b>U G</b>	<b>3</b>
The general linear regression model; multiple correlation, path analysis, analysis of variance and tests of significance; specification errors. Prereq: 4001.01 (501.01), 4001.02 (501.02), or 4001.03, and Stat 2450 (245), 4201, 4202 (420, 421), or 3470 (427, 428), or equiv. Not open to students with credit for 641, 444, or 4400.			

## 140 Economics

<b>5420</b>	<b>Econometrics II</b>	<b>U G</b>	<b>3</b>
Discrete choice models, panel data, endogeneity, instrumental variables, and systems of equations; stationary and nonstationary time series; applications in various fields of economics. Continuation of 5410. Prereq: 5410 (641) and 4002.01, 4002.02 (502.01), or 4002.03 (502.02), or PubAfrs 7571, or equiv. Not open to students with credit for 642.			
<b>5660</b>	<b>Financial Aspects of International Trade</b>	<b>U G</b>	<b>3</b>
International payments and receipts; foreign exchange markets; balance-of-payments adjustment under different monetary systems; macroeconomic policy; international monetary reforms; foreign investments; multinational corporations. Prereq: 4400 (444), 5410 (641), or Stat 2450 (245), and 4002.01 (502.01), 4002.02 (502.02), or 4002.03, or equiv. Not open to students with credit for 666.			
<b>5700</b>	<b>Industrial Organization</b>	<b>U G</b>	<b>3</b>
Nature, role, and regulation of competition; market structure and social performance; antitrust laws; current economic, legal, and policy problems in the antitrust area. Prereq: 4400 (444), 5410 (641), or Stat 2450 (245), and 4001.01 (501.01), 4001.02 (501.02), or 4001.03, or equiv. or Grad standing. Not open to students with credit for 670.			
<b>5720</b>	<b>Comparative Institutional Analysis of Firms and Markets</b>	<b>U G</b>	<b>3</b>
Applications of economic analysis to industrial organizations including the firm's internal incentive structure, labor markets, and financial institutions, of major market economies such as U.S., and Japan from comparative perspectives. Prereq: 4001.01 (501.01), 4001.02 (501.02), or 4001.03, or equiv. or Grad standing. Not open to students with credit for 672.			
<b>5850</b>	<b>Labor Economics</b>	<b>U G</b>	<b>3</b>
Advanced study of the labor market including labor demand and supply, wage determination, and unemployment. Prereq: 4400 (444), 5410 (641), or Stat 2450 (245); and 4001.01 (501.01), 4001.02 (501.02), or 4001.03, or equiv. Not open to students with credit for 685.			
<b>5860</b>	<b>Health Economics</b>	<b>U G</b>	<b>3</b>
An introductory course to the field of health economics. Students will to apply concepts from introductory and intermediate microeconomics to problems that are faced in health and medical care. The focus is on individual demand for medical care; health insurance; markets for, and institutional features of, health care providers; measuring and pricing quality, and healthcare reform. Prereq: 4001.01, 4001.02, or 4001.03. Prereq or concur: Stat 1450 or 2450.			
<b>5870</b>	<b>Neuroeconomics and Decision Neuroscience</b>	<b>U G</b>	<b>3</b>
The focus of this course will be on the psychology and neuroscience underlying economic behavior. Discussion will cover various domains of economic decision making and what Neuroeconomics has taught us about them. Prereq: AEDEcon 2005, Stat 1450, 2450, Psych 2220, or Econ 3400; and Math 1148 or higher; and Econ 4001.01, 4001.02, 4001.03, AEDEcon 4001, Psych 3313, 3513, or 4508. Not open to students with credit for Psych 5870. Cross-listed in Psych.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 4</b>
Supervised and individually designed studies for pre-qualifier graduate students in economics or graduate students in non-economics graduate programs. Prereq: Permission of instructor. Not open to students with credit for 893. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U. Letter Grade option available only with approval of economics director of graduate studies.			
<b>6700</b>	<b>Survey of Mathematical Methods in Economics</b>	<b>G</b>	<b>3</b>
Core analytical methods and techniques routinely used in the first-year graduate courses in economic theory; topics include basic real analysis, convexity, constrained optimization, envelope theorems and their economics applications. Prereq: 4001.01, 4001.02, 4001.03, or 501A and graduate mathematics courses in vector calculus and elementary linear algebra. Not open to students with credit for 704, or 705.			
<b>6701</b>	<b>Survey of Statistical Methods in Economics</b>	<b>G</b>	<b>3</b>
Probability and statistical methods frequently used in economic analysis; topics include random variables, moment generating functions, limit theorems, expectations, multiple correlations, tests of significance and their economic applications. Prereq: Math 1152 (153), or equiv; or permission of instructor and economics director of graduate studies. Not open to students with credit for Stat 5201 (520), or 6801 (620), or 640, or 720.			
<b>6711</b>	<b>Survey of Microeconomics</b>	<b>G</b>	<b>4</b>
Methodology and scope of the neo-classical microeconomics paradigm; topics include the theory of competitive firms and consumers, general equilibrium, Pareto optimum, welfare theorems, non-competitive markets, uncertainty and asymmetric information. Prereq: 4001.01 or 501A, or equiv, and permission of economics director of graduate studies. Not open to students with credit for 8711 (804), 8712 (805), 704, or 705.			
<b>6721</b>	<b>Survey of Macroeconomics</b>	<b>G</b>	<b>4</b>
Survey of macroeconomics fluctuations, business cycles and economic growth, including Keynesian, monetarist and real business cycle models; topics also include money and banking, unemployment, inflation and endogenous economic growth. Prereq: 4002.01 (502) or equiv with permission of instructor and economics director of graduate studies. Not open to students with credit for 8721 (806), or 8722 (807) or 706, or 707.			

<b>6731</b>	<b>Survey of Econometric Methods I</b>	<b>G</b>	<b>3</b>
Survey of methods as applied in econometric analysis, with applications to programming in R. Topics include data management and visualization, linear regression, causal inference, fixed/random effects, nonparametric analysis, and nonlinear models. Prereq: 4400 or 5410 or Stat 2450, and Math 2568 or equiv.; or permission of instructor. Not open to students with credit for 8731, 8732, or 8733.			
<b>6732</b>	<b>Survey of Econometric Methods II</b>	<b>G</b>	<b>3</b>
Survey of econometric methods in time series and panel data with an emphasis on empirical examples in micro and macro economics; topics include GMM, time series models, VAR, cointegration, fixed and random effects and duration models. Prereq: 6731 (702), or equiv with permission of instructor and economics director of grad studies. Not open to students with credit for 8731 (740), or 8732 (741), or 8733 (742), or 703.			
<b>6745</b>	<b>Contemporary Political Economy</b>	<b>G</b>	<b>3</b>
Survey of contemporary theories on the interactions between economic policies, domestic institutions and the international economy, and their consequences for political economy. Prereq: Grad standing or permission of instructor. Not open to students with 6 cr hrs for 6745 and PolitSc, or 10 cr hrs for 735 and PolitSc 735. Repeatable to a maximum of 6 cr hrs. Cross-listed in PolitSc 7280.			
<b>7191</b>	<b>Internship in Professional Economics I</b>	<b>G</b>	<b>0 - 1</b>
Practicum for economics graduate students who have completed the core curriculum in microeconomics, macroeconomics and econometrics to apply economic analysis on tasks and problems in an empirical economy or economic organizations. Prereq: Satisfactory completion of the first-year Ph.D. courses or equivalent with permission of Economics Director of Graduate Studies. Not open to students with credit for 901. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is graded S/U.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 4</b>
Supervised and individually designed readings in economics for postqualifier students in economics or graduate students in noneconomic graduate programs. Prereq: Open to students who completed the first-year graduate PhD core course curriculum and with permission of instructor. Not open to students with credit for 893. Repeatable to a maximum of 2 cr hrs or 5 completions. This course is graded S/U. Letter Grade option available only with approval of economics director of graduate studies.			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Lecture course of select topics designed to complement existing graduate courses in economics. Prereq: Grad standing in economics or related disciplines; permission of instructor and economics director of graduate studies. Not open to students with credit for 894. Repeatable to a maximum of 44 cr hrs or 11 completions. S/U option only available with approval of economics director of graduate studies.			
<b>7700</b>	<b>Mathematics for Economics I</b>	<b>G</b>	<b>3</b>
Mathematical concepts and techniques used in advanced economic research; real analysis; metric spaces; topology; measure and integration; convexity; separation theorems; contraction mapping; fixed point theorems; applications. Prereq: Permission of instructor and economics director of grad studies; primarily for PhD students in economics and related disciplines. Not open to students with credit for 700.			
<b>7789</b>	<b>Survey Research Practicum</b>	<b>G</b>	<b>3</b>
Hands-on applications for students interested in the planning, implementation, and analysis of a scientific sample survey. Prereq: Enrollment in Graduate Interdisciplinary Specialization program, or permission of program director. Not open to students with credit for Econ 789, AgrEduc 789, BusMktg 789, EduPL 789, Geog 789, JCom 789, PolitSc 789, Psych 789, PubHlth 789, PubPolM 789, Sociol 789, or Stat 789. Cross-listed in AEDEcon, AgrEduc, BusMktg, EduPL, Geog, JCom, PolitSc, Psych, PubHlth, PubPolM, Sociol, and Stat.			
<b>8191</b>	<b>Internship in Professional Economics II</b>	<b>G</b>	<b>0 - 1</b>
Practicum for advanced economics graduate students who have completed Ph.D. course requirements to apply economic analysis on tasks and problems in an empirical economy or economic organizations. Prereq: Satisfactory completion of the Ph.D. core and field courses or equivalent with permission of Economics Director of Grad Studies. Not open to students with credit for 901. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 4</b>
Supervised and individually specialized studies for PhD students who have finished regular course work in their economics PhD program. Letter grade option available only with approval of economics director of graduate studies. Prereq: Permission of instructor. Repeatable to a maximum of 44 cr hrs. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Advanced new course material in economics offered to complement existing PhD courses. Prereq: Grad standing in Econ or related field, and permission of instructor and Grad studies director for Econ. Not open to students with credit for 894. Repeatable to a maximum of 44 cr hrs or 11 completions.			

<b>8711</b>	<b>Microeconomic Theory IA</b>	<b>G</b>	<b>3</b>
Rigorous survey of the neoclassical paradigm dealing with individual economic agents, firms and markets; covers core concepts and methods such as equilibrium, optimality, duality, comparative statics and envelope theorems. Prereq: Grad standing in Econ, or related discipline with permission of Economics Director of Grad Studies.			
<b>8712</b>	<b>Microeconomic Theory IB</b>	<b>G</b>	<b>3</b>
Continuation and extension of Microeconomic Theory 1A to study competitive general equilibrium, optimality and welfare theorems; includes analysis of individual agents' behavior under uncertainty and markets subject to asymmetric information. Prereq: 8711, or equiv, and permission of Economics Director of Grad Studies.			
<b>8713</b>	<b>Microeconomic Theory IIA</b>	<b>G</b>	<b>3</b>
Rigorous introduction to game theoretic methods and concepts and their applications to study strategic interactions in economic organizations, including imperfectly competitive markets and economies with public goods and externalities. Prereq: 8711 or 8712, or equiv, and permission of economics director of grad studies.			
<b>8714</b>	<b>Microeconomic Theory IIB</b>	<b>G</b>	<b>3</b>
A theoretical treatment of information economics and mechanism design; topics include implementation, dominant strategy mechanism, Bayesian mechanism design, adverse selection, moral hazard, social choice and auctions. Prereq: 8713, or equiv, and permission of Economics Director of Graduate Studies.			
<b>8721</b>	<b>Macroeconomic Theory IA</b>	<b>G</b>	<b>3</b>
A rigorous introduction to modern macroeconomic analysis and models of economic growth with emphasis on dynamic competitive equilibrium analysis: topics include dynamic programming applied to stochastic environments. Prereq: Grad standing, and permission of Economics Director of Grad Studies.			
<b>8722</b>	<b>Macroeconomic Theory IB</b>	<b>G</b>	<b>3</b>
Continuation of 8721 with recent developments in macro and monetary economics; topics include business cycles, endogenous growth, equilibrium unemployment and risk sharing in incomplete markets. Prereq: 8721 or equiv, and permission of Economics Director of Grad Studies.			
<b>8723</b>	<b>Macroeconomic Theory IIA</b>	<b>G</b>	<b>3</b>
Continuation of Macroeconomic Theory IA-IB with emphasis on dynamic general equilibrium models with shocks and frictions and their empirical assessment. Prereq: 8722, or equiv, and permission of Economics Director of Grad Studies.			
<b>8724</b>	<b>Macroeconomic Theory IIB</b>	<b>G</b>	<b>3</b>
Micro foundations of aggregate demand from the perspective of dynamic optimization; topics also include permanent income, lifetime portfolio choice, Q-theory of investment, consumption CAPM, term structure and long term risk. Prereq: 8723, or 806 and 807, or equiv, and permission of Economics Director of Grad Studies. Not open to students with credit for 809.			
<b>8731</b>	<b>Econometrics I</b>	<b>G</b>	<b>4</b>
Probability; random variables; sampling distributions; limit theorems; point and interval estimation; statistical hypothesis testing; multiple regression analysis in the linear model including finite-sample and asymptotic statistical properties. Prereq: 6700, 6701, or Stat 5201; or equiv with permission of economics director of grad studies.			
<b>8732</b>	<b>Econometrics II</b>	<b>G</b>	<b>4</b>
Generalized least squares; specification tests; generalized method of moments; endogenous regressors and simultaneous equation systems; panel data; nonlinear estimation; discrete and limited dependent variable models; and basic time-series analysis. Prereq: 8731, or equiv with permission of Economics Director of Graduate Studies.			
<b>8733</b>	<b>Econometrics III</b>	<b>G</b>	<b>3</b>
Continuation of Economics 8731 and 8732 with an emphasis on applications of econometric theory and methods, including the use of advanced econometric software to various fields of economics. Prereq: Econ 8731 and 8732, or equiv with permission of instructor. Not open to students with credit for 640, 740, 741, and 742.			
<b>8781.01</b>	<b>First Year Research Principles and Techniques in Core Microeconomics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study of research principles and techniques for first-year PhD students in economics with focus on microeconomics. Prereq: 8714 (808), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8781.02</b>	<b>First Year Research Principles and Techniques in Core Macroeconomics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study of research principles and techniques for first year PhD students in economics with focus on macroeconomics. Prereq: 8724 (809), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

<b>8781.03</b>	<b>First Year Research Principles and Techniques in Core Econometrics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study of research principles and techniques for first year PhD students in economics with focus on econometrics. Prereq: 8732 (742), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8781.05</b>	<b>First Year Research Principles and Techniques in Economics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study of research principles and techniques for first year PhD students in economics. Prereq: Grad standing in Economics, and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.01</b>	<b>Second Year Research Principles and Techniques in Economic Theory</b>	<b>G</b>	<b>1 - 3</b>
Group independent study-cum-workshop to facilitate integrative reviews of concepts and techniques in major themes of economic theory, to prepare for field exams/papers, and to develop research perspectives. Prereq: 8816 (815), 8817 (817), or 8818 (818), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.02</b>	<b>Second Year Research Principles and Techniques in Macroeconomics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in macro-monetary economics and to develop research topics. Prereq: 8821 (810), 8822 (811), or 8823 (820), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.03</b>	<b>Second Year Research Principles and Techniques in Econometrics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in econometrics and to develop research topics. Prereq: 8830 (840), 8831 (841), or 8832 (842), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.04</b>	<b>Second Year Research Principles and Techniques in Public and Urban Economics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in public and urban economics and to develop research topics. Prereq: 7790 (790), 8841 (830), or 8842 (832), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.05</b>	<b>Second Year Research Principles and Techniques in Labor Economics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in labor economics and to develop research topics. Prereq: 8851 (883), 8852 (884), or 8853 (981), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.06</b>	<b>Second Year Research Principles and Techniques in International Economics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in international economics and to develop research topics. Prereq: 8861 (861), 8862 (862), or 8863 (863), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.07</b>	<b>Second Year Research Principles and Techniques in Industrial Organization</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in industrial organization and to develop research topics. Prereq: 8871 (871), 8872 (872), or 8873 (970), and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.08</b>	<b>Second Year Research Principles and Techniques in Economic History</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in economic history and to develop research topics. Prereq: 5130 (614), 5140 (613), or 5150 (615), and permission of instructor and economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8782.09</b>	<b>Second Year Research Principles and Techniques in Experimental Economics</b>	<b>G</b>	<b>1 - 3</b>
Group independent study designed to integrate and reinforce field knowledge and methods in experimental and behavioral economics and to develop research topics. Prereq: 8873 (970) or 8875, and permission of economics director of graduate studies. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

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**8782.10 Second Year Research Principles and Techniques in Growth and Development Economics** G 1 - 3

Group independent study designed to integrate and reinforce field knowledge and methods in growth and development economics and to develop research topics.  
Prereq: 8863 (863), and a field course approved by economics director of graduate studies, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**8782.20 Second Year Research Principles and Techniques in Economics** G 1 - 3

Group independent study designed to integrate and reinforce knowledge and methods acquired in advanced field courses, and to develop research topics.  
Prereq: Major field courses approved by economics director of graduate studies, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**8783.01 Advanced Research Principles and Techniques in Economic Theory** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of advanced economic theory. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.02 Advanced Research Principles and Techniques in Macroeconomics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of macroeconomics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.03 Advanced Research Principles and Techniques in Econometrics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of econometrics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.04 Advanced Research Principles and Techniques in Public and Urban Economics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of public and urban economics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.05 Advanced Research Principles and Techniques in Labor Economics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of labor economics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.06 Advanced Research Principles and Techniques in International Economics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of international economics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.07 Advanced Research Principles and Techniques in Industrial Organization** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of industrial organization. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.08 Advanced Research Principles and Techniques in Economic History** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of economic history. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.09 Advanced Research Principles and Techniques in Experimental Economics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of experimental and behavioral economics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.10 Advanced Research Principles and Techniques in Growth and Development Economics** G 1 - 3

Group independent study to prepare students for original research and innovation in the field of growth and development economics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8783.20 Advanced Research Principles and Techniques in Economics** G 1 - 3

Group independent study to prepare students for original research and innovation in economics. Open to students who have completed field courses approved by economics director of graduate studies.  
Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8816 Advanced Economic Theory I** G 3

A topic-driven course in advanced microeconomic theory, game theory and decision theory, and their theoretical applications with emphasis on important recent results.  
Prereq: 8714 (808), or equiv with permission of instructor. Not open to students with credit for 815.

**8817 Advanced Economic Theory II** G 3

Thorough treatment of major developments in game theory and a survey of major applied game theory topics such as mechanism design, bargaining, and oligopoly.  
Prereq: 8714 (808) or equiv with permission of instructor. Not open to students with credit for 817.

**8818 Advanced Economic Theory III** G 3

Theoretical approaches to economics of information; how information affects individual behavior and market equilibrium; moral hazard; adverse selection; incomplete contracts; rational expectations; and principal-agency models.  
Prereq: 8714 (808), or equiv with permission of instructor. Not open to students with credit for 818.

**8819 Economics of Uncertainty** G 3

Classical and modern approaches to decision-making and economic behavior under uncertainty; classical expected utility; subjective probability; behavioral theory of economic choice under uncertainty. S/U option available only with permission of Grad studies director for Econ.  
Prereq: 8714 (808) or equiv, or permission of instructor. Not open to students with credit for 819.

**8821 Advanced Macroeconomics I** G 3

Recent contributions to macro-monetary economics in theoretical, empirical and policy areas; topics include computational methods, econometric techniques, dynamic modeling and empirical assessment.  
Prereq: 8724 (809), or permission of instructor. Not open to students with credit for 810.

**8822 Advanced Macroeconomics II** G 3

Studies roles of preferences, technology, endowments, and market structures to determine the behavior of aggregate variables. Topics include: dynamic stochastic general equilibrium, rational expectations, business cycles, and propagation mechanisms.  
Prereq: 8732 (742), or 8724 (809), or permission of instructor. Not open to students with credit for 811.

**8823 Advanced Macroeconomics III** G 3

Studies the macroeconomic implications of discrete decisions by heterogeneous agents and assesses quantitative DSGE models. Topics include: lumpy adjustments, non-convex adjustment costs, and the interactions of real and financial frictions.  
Prereq: 724, or 809, or permission of instructor. Not open to students with credit for 820.

**8825 Advanced Macroeconomic Methods** G 3

Develops numerical methods for dynamic stochastic general equilibrium models with heterogeneity and non-convexities. Applications include: models of households with uninsurable risk and borrowing constraints, and firms with adjustment costs.  
Prereq: Not open to students with credit for 816.

**8830 Advanced Econometrics I** G 3

Fundamental elements of time series methods and recently developed techniques for the analysis of economic time series.  
Prereq: 8732 (742), or equiv with permission of instructor. Not open to students with credit for 840.

**8831 Advanced Econometrics II** G 3

Selected advanced topics in econometrics - such as nonparametric and semiparametric estimation, numerical optimization, simulation methods - including Markov chain Monte Carlo methods and duration models used in economics.  
Prereq: 8732 (742) or equiv with permission of instructor. Not open to students with credit for 841.

**8832 Advanced Econometrics III** G 3

Theory and applications of advanced econometric methods with emphasis on parameter estimation and testing in nonlinear models. Topics include: large sample theory, extremum estimators, likelihood approach, and the GMM framework.  
Prereq: 8732 (742) or equiv with permission of instructor. Not open to students with credit for 842.



<b>8833</b>	<b>Micro Econometrics</b>	<b>G</b>	<b>3</b>
Recent advances in micro econometrics, covering both theoretical and applied areas, with emphasis varying with instructor's research interest such as spatial econometrics and social interaction models. Prereq: Econ 8732 (742), Econ 8831 (841), and Econ 8832 (842), or equiv, or permission of instructor. Not open to students with credit for 843. Repeatable to a maximum of 12 cr hrs.			
<b>8851</b>	<b>Labor Economics I</b>	<b>G</b>	<b>3</b>
Theoretical and empirical methods used to understand life-cycles and interpersonal variations in earnings. Topics include: human capital, job-market signaling, matching, schooling, and mobility. Prereq: 8712 (804, 805), and 8731 (741), or equiv with permission of instructor. Not open to students with credit for 883.			
<b>8852</b>	<b>Labor Economics II</b>	<b>G</b>	<b>3</b>
Theories and empirical analysis of the demand for labor and changes in the wage structure over time; the determinants of youth outcomes and behaviors including the effect of family and peer groups. Prereq: 8712 (804, 805), and 8731 (741), or equiv with permission of instructor; 8851 (883) recommended. Not open to students with credit for 884.			
<b>8853</b>	<b>Labor Economics III</b>	<b>G</b>	<b>3</b>
An examination of models and methods used to study household labor supply behavior. Topics include: retirement, the determinants of child outcomes, and demographic behavior. 8852 (884) is recommended. Prereq: 8851 (883). Not open to students with credit for 981.			
<b>8856</b>	<b>Health Economics</b>	<b>G</b>	<b>3</b>
This course covers major research topics in health care and individual economics decisions related to health, structure of health care and insurance markets, and government policies. The course also provides a survey of data resources available to researchers in health economics, and the methodology of measurement and valuation of healthcare market performance and quality of healthcare providers. Prereq: 8712 and 8731; or permission of instructor.			
<b>8861</b>	<b>International Economics I</b>	<b>G</b>	<b>3</b>
Theory and empirics of the determinants of trade, analysis of comparative advantage, trade patterns, gains from trade, commercial policies on resource allocations, income distribution and growth. Prereq: 8712 (804, 805). Not open to students with credit for 861.			
<b>8862</b>	<b>International Economics II</b>	<b>G</b>	<b>3</b>
Theory and empirics of international macroeconomics. Topics include: open-economy business cycles, determinants of exchange rates, international capital flows and resource allocations, financial constraints, and computational and estimation methods. Prereq: 8712 (804, 805) 8722 (806, 807); and 8861 (861) recommended. Not open to students with credit for 862.			
<b>8863</b>	<b>International Economics III</b>	<b>G</b>	<b>3</b>
Evolution of world economy from theoretical and empirical perspectives; trade; growth and development; international capital markets; financial crises and sovereign default; international business cycle transmissions. Prereq: 8712 (804, 805), and 8722 (806, 807); and 8862 (862) recommended. Not open to students with credit for 863.			
<b>8871</b>	<b>Industrial Organization I</b>	<b>G</b>	<b>3</b>
A survey of theoretical concepts used to analyze industry structure, firm conduct, market performance and related issues of public policy; topics include recent developments in the theory of the firm as well as models of competition and rivalry. Prereq: 8713 (805, 808). Not open to students with credit for 871.			
<b>8872</b>	<b>Industrial Organization II</b>	<b>G</b>	<b>3</b>
A survey of empirical methods used to analyze industry structure, firm conduct, market performance and related issues of public policy. Prereq: 8871 (871), and 8732 (742); or permission of instructor. Not open to students with credit for 872.			
<b>8873</b>	<b>Industrial Organization III: Economic Analysis of Auctions</b>	<b>G</b>	<b>3</b>
A survey of auction theory, experiments, and empirics; topics include private and common value auctions, multi-unit demand auctions, sequential and simultaneous auctions, and related research material. Prereq: 8714 (808), or equiv, and permission of instructor.			
<b>8874</b>	<b>Computational Econometric Methods in Applied Microeconomics</b>	<b>G</b>	<b>3</b>
This course covers computational methods used in applied microeconomic research, with particular focus on applications to the estimation and analysis of structural discrete choice models used in the study of empirical industrial organization. Prereq: 8711 and 8731.			
<b>8875</b>	<b>Experimental &amp; Behavioral Economics</b>	<b>G</b>	<b>3</b>
A survey of concepts and methods in experimental and behavioral economics for advanced graduate students; topics include impacts of heuristics and biases on "rational" behavior, other-regarding preferences, bargaining, public goods and market design. 8873 (970) recommended. Prereq: 8714 (808), 804, or 805, or equiv, or permission of instructor.			

<b>8876</b>	<b>Industrial Organization IV: Empirical Research Methods</b>	<b>G</b>	<b>3</b>
Recently developed techniques for estimating market power and costs with incomplete data, with applications to antitrust economics. The goal is to give you an understanding of state of the art empirical tools, with the purpose of preparing students for research. Prereq: 8714, and permission of instructor.			
<b>8891.01</b>	<b>Economic Theory Seminar</b>	<b>G</b>	<b>1 - 3</b>
Latest developments in advanced research in general economic theory, game theory and related fields. Prereq: 8714 (808), and permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			
<b>8891.03</b>	<b>Colloquium in Economic Theory</b>	<b>G</b>	<b>1 - 3</b>
A supervised workshop in which advanced graduate students report their latest research in progress on the themes chosen by the colloquium instructor in advanced theory and related fields. Open to students who have completed PhD field courses approved by economics director of graduate studies. Prereq: Permission of instructor and economics director of graduate studies. Repeatable to a maximum of 16 cr hrs or 8 completions.			
<b>8892.01</b>	<b>Macroeconomics Seminar</b>	<b>G</b>	<b>1 - 3</b>
Latest developments in advanced research in macro-monetary economics and related fields. Prereq: 8724 (809), and permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			
<b>8892.02</b>	<b>Workshop in Macroeconomics</b>	<b>G</b>	<b>1 - 2</b>
Forum to report and discuss the latest research results by graduate students, faculty members and outside speakers in macro-monetary economics and related fields. Prereq: Econ 8724 (809), and permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions. This course is graded S/U.			
<b>8892.03</b>	<b>Colloquium in Macroeconomics</b>	<b>G</b>	<b>1 - 3</b>
A supervised workshop in which advanced graduate students report their latest research in progress on the themes chosen by the colloquium instructor in macroeconomics and related fields. Open to students who have completed PhD field courses. Repeatable to a maximum of 16 cr hrs or 8 completions.			
<b>8893.01</b>	<b>Econometrics Seminar</b>	<b>G</b>	<b>1 - 3</b>
Latest developments in advanced research in econometrics and related fields. Prereq: 8732 (741 and 742), and permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions.			
<b>8893.03</b>	<b>Colloquium in Econometrics</b>	<b>G</b>	<b>1 - 3</b>
A supervised workshop in which advanced graduate students report their latest research in progress on the themes chosen by the colloquium instructor in econometrics. Prereq: Successful completion of micro and macro qualifiers, successful completion of two Ph.D. field requirements (econometrics recommended), and permission of instructor and economics director of graduate studies. Repeatable to a maximum of 16 cr hrs or 8 completions.			
<b>8894.01</b>	<b>Applied Microeconomics Seminar</b>	<b>G</b>	<b>1 - 3</b>
Latest developments in advanced research in applied microeconomics fields. Prereq: 8714 (808), and permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions.			
<b>8894.02</b>	<b>Workshop in Applied Microeconomics</b>	<b>G</b>	<b>1 - 2</b>
Forum to report and discuss the latest research results by graduate students, faculty members and outside speakers in applied microeconomics fields. Prereq: 8714 (808), and permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions. This course is graded S/U.			
<b>8894.03</b>	<b>Colloquium in Applied Microeconomics</b>	<b>G</b>	<b>1 - 3</b>
A supervised workshop in which advanced graduate students report their latest research in progress on the themes chosen by the colloquium instructor in applied microeconomics and related fields. Prereq: Completion of Ph.D. field courses approved by economics director of graduate studies, and permission of instructor and economics director of graduate studies. Repeatable to a maximum of 16 cr hrs or 8 completions.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 3</b>
Dissertation research in economics. Prereq: Doctoral candidate in Economics. Repeatable to a maximum of 60 cr hrs or 20 completions. This course is graded S/U.			

## Education and Human Ecology

<b>1100</b>	<b>Introduction to Education &amp; Human Ecology and Degree Planning</b>	<b>U</b>	<b>1</b>
Introduction to Education and Human Ecology degree programs, survey of university and college policies and procedures, and focus on degree planning. Prereq: Not open to students with credit for HumanEc 100 or EduPAES 100.			

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<b>1100H</b>	<b>Introduction to Education &amp; Human Ecology and Degree Planning</b>	<b>U</b>	<b>1</b>
Introduction to Education and Human Ecology degree programs, survey of university and college policies and procedures, focus on degree planning, establishment of Honors requirements, and development of Honors contracts. Prereq: Honors standing. Not open to students with credit for HumanEc 100 or EduPAES 100.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Study of special or interdisciplinary topics at an introductory level. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>2788H</b>	<b>Education and Human Ecology Undergraduate Honors Seminar</b>	<b>U</b>	<b>1</b>
Seminar for sophomores and juniors in the Education and Human Ecology undergraduate honors program. Students will explore research topics, and learn about the process of completing a scholarly research project. Prereq: Honors standing, and Soph or Jr standing, and enrollment in EHE major or pre-major.			
<b>2990</b>	<b>Professional Career Development</b>	<b>U</b>	<b>1</b>
Job Search strategies for students including: Self-assessment, goal setting, job research, communication and correspondence, resumes, interviewing, portfolios and life after college. This course will not count for credit in any EHE major. Elective credit only. Prereq: Soph standing, and pre-majors and/or majors in College of Education and Human Ecology. Not open to students with credit for ConSci 2990, HDFS 3800, or EduPAES 2270.04. This course is graded S/U.			
<b>3000</b>	<b>Foundations for Peer Leaders in First Year Experience</b>	<b>U</b>	<b>1</b>
This foundational course introduces necessary skills/knowledge to work effectively as a Peer Leader in First Year Experience. Content covers first-year transition issues, student development theory, OSU policies and resources, relationship-building, and paraprofessional skills. Emphasis is on content relevant to experiences of New First Year Students across the university. Prereq: Only open to students who have been selected to participate in the FYE Peer Leader program, and permission of instructor. Repeatable to a maximum of 2 cr hrs.			
<b>3100</b>	<b>Paraprofessional Skill Development for EHE Peer Mentors</b>	<b>U</b>	<b>1</b>
This course provides a framework for undergraduate students to work effectively with their peers. The development of communication, public speaking, decision-making, and referral skills is stressed. Current issues in higher education are also explored. This course is limited to participants in the EHE Peer Mentor program. Prereq: Permission of instructor or department. Repeatable to a maximum of 3 cr hrs.			
<b>3191</b>	<b>Internships in Education and Human Ecology</b>	<b>U</b>	<b>1 - 3</b>
Fourteen week practical experience or equivalent in an approved organization related to student's major interest. This general internship option is for experiences that do not fit program specific EHE Internships. This course will not count for credit in any EHE major. Elective credit only. Prereq: CPHR 2.0 or above, and pre-major and/or major in Education and Human Ecology, and permission of instructor. Not open to students with credit for ConSci 3191 and 4191, or HDFS 2189, 3189.01, 3189.02, 3189.03, 3189.04, 3189.05, 3189.06, 3189.07, HumnNtr 4189, EduPAES 2189.21, 4189.05, 4489.05, 4191.20, 4191.21, 4191.40, 5191.23, or 6191. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group studies on special issues in education. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>4998</b>	<b>Undergraduate Research in Education &amp; Human Ecology</b>	<b>U</b>	<b>0 - 15</b>
Undergraduate research or creative activities in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Thesis Research</b>	<b>U</b>	<b>0 - 15</b>
Undergraduate research or creative activities in variable topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 4 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Individual study in the fields of education or human ecology. Prereq: Permission of instructor. This course is graded S/U.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 18</b>
An opportunity for students to study at a foreign institution and receive OSU credit for work completed there. Students will pay OSU fees and any fees in excess of OSU tuition, as well as all travel and subsistence costs. Prereq: Permission of department chairperson. Repeatable to a maximum of 54 cr hrs or 3 completions.			
<b>5892</b>	<b>Workshop</b>	<b>U G</b>	<b>1 - 5</b>
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices. Repeatable to a maximum of 20 cr hrs or 4 completions.			

<b>8000</b>	<b>Responsible Conduct of Research (RCR)</b>	<b>G</b>	<b>1</b>
Overview of the concepts and policies required for the Responsible Conduct of Research (RCR), with particular attention to federally funded research requirements. This course fulfills the NIH training requirement for research ethics. This is a condensed four-week course. Typically taught in session 1 of summer term. Prereq: Grad standing in the College of Education and Human Ecology, or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			

## Education: Teaching and Learning

<b>1010</b>	<b>Intensive English: Integrated Skills</b>	<b>U</b>	<b>0</b>
Integrated Skills for students in the Intensive English Program. Prereq: Admission to American Language Program, and permission of Director. Repeatable to a maximum of 10 completions.			
<b>1120</b>	<b>Intercultural Communication for Undergrad Business &amp; Pre-business Majors</b>	<b>U</b>	<b>2</b>
This performance-based course focuses on the speaking skills that facilitate success in the Fisher College of Business, OSU, and ultimately in the global business community. Aimed at helping first-year international undergraduate students, the course features activities, discussions, and readings related to cross-cultural conventions of spoken English and business English. Prereq: First-year international student in the Fisher College of Business, and students who scored 24 or below on the oral proficiency section of the TOEFL.			
<b>1901</b>	<b>Advanced English as a Second Language</b>	<b>U</b>	<b>3</b>
Reviews advanced English patterns with emphasis on their use in writing essays. Intended for undergraduates. Prereq: Placement test score of 1901.			
<b>1902</b>	<b>Academic Writing in English as a Second Language</b>	<b>U</b>	<b>3</b>
Attention given to various practices involving reading and source-based writing. Rhetorical and linguistic issues addressed. Synthesis and argumentative writing in response to literary and nonliterary texts. Intended for undergraduates. Prereq: A grade of D or above in 1901, or Placement Test.			
<b>1902.04</b>	<b>Academic Writing in English as a Second Language</b>	<b>U</b>	<b>4</b>
Attention given to various practices involving reading and source-based writing. Rhetorical and linguistic issues addressed. Synthesis and argumentative writing in response to literary and nonliterary texts. Intended for undergraduates. Prereq: Placement test.			
<b>2100</b>	<b>Dramatic and Arts-Based Teaching and Learning</b>	<b>U</b>	<b>3</b>
Students will become comfortable with, and knowledgeable about arts integration: dramatic and arts-based approaches to teaching and learning in diverse settings (schools, art museums, theatres, community centers).			
<b>2189</b>	<b>Field Experience</b>	<b>U</b>	<b>1 - 2</b>
Professional service with children or youth in a school or community agency. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>2367</b>	<b>Education, Society and Writing</b>	<b>U</b>	<b>3</b>
Designed to help students reflect critically, both orally and in writing, on the social, political, and cultural contexts that influence education in today's society. Prereq: A GE level 1 writing course. Not open to students with credit for 607. GE writing and comm course: level 2.			
<b>2368</b>	<b>Introduction to Children's Literature</b>	<b>U</b>	<b>3</b>
This is a survey course in which students study the historical and contemporary elements of literature intended for children, including picturebooks; traditional tales; novels of realism, and fantasy; nonfiction; poetry; and multicultural books. Prereq: English 1110, or equiv. Not open to students with credit for 467. GE lit course.			
<b>2744</b>	<b>Technologies Used In STEM Education</b>	<b>U</b>	<b>3</b>
The role and scope of educational technology for standards based STEM instruction. Exploration of areas in which mathematics, science education, and technology education can effectively use educational technology in a pedagogically sound manner. Technology has two roles in STEM education; to teach and learn with, and as a tool for doing STEM.			
<b>2820</b>	<b>Creativity and the Arts in Early Childhood Development and Education</b>	<b>U</b>	<b>3</b>
This course introduces students to basic definitions, theories, and practical examples of using creativity, imagination, and the arts as means for educating young children within and outside of traditional early childhood educational settings.			
<b>3160</b>	<b>Application of Development in Learning Contexts</b>	<b>U</b>	<b>3</b>
Designed for students to apply theories and research of child growth and development in multiple learning contexts. Prereq: Not open to students with credit for 460. GE soc sci indivs and groups course.			
<b>3189.01</b>	<b>Field Experience: Early Childhood Education</b>	<b>U</b>	<b>1 - 2</b>
This field experience is designed as a practice-based companion to the EC Pedagogy class. Prereq: Admission to Early Childhood Education Major. Repeatable to a maximum of 4 cr hrs or 4 completions.			

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### 3189.02 Field Experience: Middle Childhood Education U 1 - 2

The experience is designed to provide : lesson planning, teaching, and classroom management; student learning, interests, and perspectives; (3) the requirements of being a professional educator; and effectively bringing together the work done in a university classroom with work done in grade 4-9 classrooms.

Prereq: Admission to Middle Childhood Education Major. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 3189.03 Field Experience: English Language Education U 1 - 2

The field experience is designed to provide: (1) lesson planning, teaching, and classroom management; (2) student learning, interests, and perspectives; (3) the requirements of being a professional educator; and (4) effectively bringing together the work done in a university classroom with work done in 7-12 integrated language arts classrooms.

Prereq: Admission to English Language Arts Education Major. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 3189.05 Field Experience: Early Childhood Visual Impairment U 1 - 2

The experience is designed to provide: how students think & learn; how teachers engage students with visual impairments & others in the classroom in learning; how to work with children with VI in groups, including effectual guidance & discipline strategies; how to connect the classroom to families & community; how you can effectively bring the work done in pedagogy to work with VI students.

Prereq: Admission to Early Childhood Education Major and Visual Impairments licensure program. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 3189.06 Field Experience: World Language Education U 1 - 2

Directed field experience emphasizing appropriate teaching strategies for world language education with different school age children and settings.

Prereq: Admission to World Language Education Major. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 3189.08 Field Experience: TESOL U 1 - 2

Directed field experience emphasizing appropriate teaching strategies for TESOL with different school age children and settings.

Prereq: Admission to TESOL major. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 3189.09 Field Experience: Child and Youth Studies U 1 - 2

Field experience designed to provide undergraduate students in the Child & Youth Studies program an opportunity to work with a cooperating professional within an educational or community organization focusing on teaching & learning.

Prereq: Admission to Child and Youth Studies Major. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 3193 Individual Studies U 1 - 3

Individual study projects.

Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 20 completions.

This course is graded S/U.

### 3194 Group Studies U 1 - 3

Group studies on special problems in education.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.

### 3356 Literature for Adolescents U 3

Literature for individual, group, and whole-class reading in junior and senior high schools; interest factors and literary value as criteria for selection; bibliographic aids.

Prereq: English 1110 or equivalent. Not open to students with credit for 656 or 3356E. GE lit course.

### 3356E Literature for Adolescents U 3

Literature for individual, group, and whole-class reading in junior and senior high schools; interest factors and literary value as criteria for selection; bibliographic aids.

Prereq: English 1110 or equivalent. Not open to students with credit for 3356 (656). GE lit course.

### 4005 Urban Teaching and Learning U 3

This course introduces students to issues related to teaching and learning in urban school contexts.

Prereq: Not open to students with credit for 559. GE soc sci indivs and groups and diversity soc div in the US course.

### 4015 Sexualities and Education U 3

Examination of sexual orientation as an arena of diversity in K-12 and higher education as well as society.

Prereq: Not open to students with credit for EduPL 415.

### 4174 Family Participation in Early Childhood School Programs: General Student Body U 3

The purposes and importance of family involvement in early childhood school programs, types of programs, resources, methods, and curricula.

### 4189.01 Advanced Field Experience: Early Childhood Education U 1 - 4

The field experience is designed to provide: classroom practices in lesson planning, teaching, and guidance and discipline; student learning, interests, and perspectives; the official and unofficial requirements of being a professional educator; and how you can effectively bring together the work done in a university classroom with your work in classrooms with students age 3 to grade 3.

Prereq: Admission to Early Childhood Education Major. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4189.02 Advanced Field Experience: Middle Childhood Education U 1 - 4

The field experience is designed to provide: best practices in lesson planning, teaching, and classroom management; student learning, interests, and perspectives; the official and unofficial requirements of being a professional educator; and how you can effectively bring together the work done in a university classroom with grade 4-9 classrooms.

Prereq: Admission to Middle Childhood Education Major. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4189.03 Advanced Field Experience: English Language Arts Education U 1 - 4

The advanced field experience is designed to provide: lesson planning, pedagogy, and classroom management; student learning, interests, and perspectives; the requirements of being a professional educator; and effectively bringing together the work done in a university classroom with work done in 7-12 integrated language arts classrooms.

Prereq: Admission to English Language Arts Education Major. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4189.05 Advanced Field Experience: Early Childhood/Visual Impairment U 1 - 4

The field experience is designed to provide: best practices in lesson planning, teaching, & classroom management; (2) student learning, interests, & perspectives; official & unofficial requirements of being a professional educator; & how you can effectively bring together the work done in a university classroom with your work in classrooms or educational settings with students in ECVI.

Prereq: Admission to Early Childhood Education Major and Visual Impairments licensure program. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4189.06 Advanced Field Experience: World Language Education U 1 - 4

Directed field experience emphasizing appropriate teaching strategies for World Language K-12 students.

Prereq: Admission to World Language Education Major. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4189.07 Advanced Field Experience: STEM Education U 1 - 4

The purpose of this field experience is to support & enhance the development of educational leaders who engage in & implement research-based practices to support & advance STEM 7-12 educational progress. Our program prepares interns for initial licensure & engage experienced educators who aspire to advance their practice.

Prereq: Admission to STEM Education Major. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4189.08 Advanced Field Experience: TESOL U 1 - 4

Directed field experience emphasizing appropriate teaching strategies for TESOL grades K-12.

Prereq: Admission to TESOL Major. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 4191 Internship U 1 - 15

Internship in an educational or community setting.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.

### 4303 Linguistic Diversity in Education U 3

Prepares students to work effectively with linguistically diverse populations in educational contexts and includes an introduction to linguistic diversity and how it shapes teaching and learning.

### 4998 Undergraduate Research in Teaching and Learning U 1 - 4

Undergraduate Research is completed by junior and/or senior students as an independent study under the supervision of a faculty member. The student will conceptualize a research study, identify theories and methods appropriate to the research, and assume responsibility for data collection, data management, and other activities pertaining to the research project including scholarly writing.

Prereq: A cumulative GPA of 3.0 or above. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

### 4998H Undergraduate Research in Teaching and Learning U 1 - 4

Undergraduate Research is completed by junior and/or senior honors students as an independent study under the supervision of a faculty member. The student will conceptualize a research study, identify theories and methods appropriate to the research, and assume responsibility for data collection, data management, and other activities pertaining to the research project including scholarly writing.

Prereq: Honors standing, and an overall GPA of 3.40 or above. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

### 5005 Equity and Diversity in Education U G 3

Focuses on issues of diversity, equity, teacher beliefs, and multicultural education. Emphasis is placed on the roles of identity and lived experience and its influences on approaches to teaching and learning in educational settings.

Prereq: Not open to students with credit for 815.

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**5030 Spoken English for Academic Contexts U G 2**

This course is designed for international undergraduates and graduates who would like to improve their oral English proficiency and confidence speaking for academic purposes, as well as their familiarity with the languages and cultures of the U.S. and of OSU. The course is based on the principle that speaking improves only with ample opportunities to speak. Repeatable to a maximum of 4 cr hrs.

**5040 Advanced Spoken English for Int'l Graduate Students I U G 4**

Designed to improve the spoken English fluency, pronunciation, grammar, and listening comprehension of non-native English speaking graduate students. Public speaking skills and an awareness of American culture.

Prereq: Placement test, and permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**5050 Classroom English for International Graduate Teaching Associates U G 3**

Designed to improve the classroom communication skills of non-native English speaking TAs. With a focus on teaching, linguistic and discourse competence are developed for success in the cultural context of the American university.

Prereq: Placement test, and permission of instructor. This course is graded S/U.

**5055 Teaching Workshop for International Graduate Teaching Associates U G 2**

Addresses the particular issues of non-native English speaking graduate students as TAs. Involves discussion of teaching issues, classroom observations, and extensive teaching practice and feedback in both class and tutorials.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**5060 Special Topics: Spoken English for International Graduate Students U G 1**

Focuses on areas of language acquisition challenges for students needing extra work in a specific aspect of language development to progress through completion and certification in a timely manner.

Prereq: Placement test required or permission of English as a Second Language department. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

**5101 Teaching and Learning with Drama: Introduction U G 3**

Introduction to the use of drama and social imagination in education.

Prereq: Jr or Sr standing with some field experience, or experienced teacher. Not open to students with credit for 633. Repeatable to a maximum of 6 cr hrs.

**5102 Teaching and Learning of Literacy in Grades Pre-K - 3 U G 3**

Examination of children's oral and written language development and related theoretical understandings instrumental for teaching language arts including evaluation processes and instructional materials.

Prereq: Enrollment in Education major or Master of Education.

**5108 Teaching and Learning of Mathematics in Grades Pre-K - 3 U G 3**

Prepares preservice teachers with knowledge, skills of, and ability to use standards, learning theories, pedagogies, assessment, and technology for the teaching and learning of Pre-K - 3 early childhood mathematics in a diverse classroom.

Prereq: Admission to Early Childhood teaching licensure program, or permission of instructor.

**5120 Arts-Based Integrated Learning U G 3**

Focuses on using arts-based, inquiry-based, and project-based learning as interdisciplinary, integrated approaches to curriculum and building multiple literacies and supporting multiple learners simultaneously.

Prereq: Not open to students with credit for 872.

**5123 Early Childhood Pedagogy U G 3**

Pedagogy I explores sociocultural perspectives on teaching and learning in early childhood and elementary education, the role of teacher as researcher/inquirer, and the ways in which sociocultural pedagogies interface with standard-based education.

Prereq: Admission to major or M.Ed. Not open to students with credit for 723.

**5125 Redefining Roles: Investigating Reggio-inspired Practice U G 3**

Students are introduced to foundational principles of the Reggio Emilia approach for children from infancy-elementary years. Using these tenets, students will develop a theory of how Reggio principles interface with teaching and learning within an American context, emphasizing the reexamination of teacher roles and the learner through an inquiry-based approach.

**5129 Teaching and Learning of Science in Grades Pre K - 3 U G 3**

Exploration of contemporary alternatives in early childhood science education and the development of knowledge and skills for teaching and learning in grades Pre K - 3, with a focus on preschool and kindergarten.

Prereq: Enrollment in Education major or Master of Education. Not open to students with credit for 729.

**5137 Teaching and Learning of Social Studies Grades Pre-K - 3 U G 3**

Designed to provide opportunities to examine interesting and effective social studies content knowledge, cultural understandings, and pedagogies for the early childhood learner within global contexts.

Prereq: Not open to students with credit for 737.

**5174 Family Participation in Early Childhood School Programs U G 3**

The purposes and importance of family involvement in early childhood school programs, types of programs, resources, methods, and curricula.

Prereq: Education pre-major or admission to licensure program.

**5189.01 Planned Field Experience: Early Childhood U G 1 - 15**

Planned field experience under supervision in a PK-5th grade classroom.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.02 Field Experience: Middle Childhood U G 1 - 15**

Planned field experience under supervision in a 4th-9th grade classroom.

Prereq: Enrollment in Master of Education program, and permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.03 Field Experience: Integrated Language Arts & Social Studies U G 1 - 15**

Planned field experience under supervision in a ILA or ISS 7th-12th grade classroom.

Prereq: Enrollment in Master of Education program, and permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.04 Field Experience: Social Studies U G 1 - 15**

Planned field experience under supervision in an Integrated Social Studies 7th-12th grade classroom.

Prereq: Admission to Integrated Social Studies MEd program. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.05 Planned Field Experience: Visual Impairment U G 1 - 15**

Planned field experience for Visual Impairment license.

Prereq: Enrollment in Master of Education VI or TVI program, and permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.06 Field Experience: TESOL or World Language U G 1 - 15**

Planned field experience under supervision in TESOL or World Language Classroom.

Prereq: Enrollment in Master of Education program, and permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.07 Field Experience: STEM U G 1 - 15**

Planned field experience under supervision in STEM 7th-12th grade classroom.

Prereq: Enrollment in Master of Education program, and permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.

**5189.11 Field Experience: Early Childhood Generalist Endorsement U G 1**

This field experience is designed to provide an opportunity to work with a mentor teacher to gain insight into: best practices in lesson planning, teaching, and classroom management; student learning, interests, and perspectives; how to effectively implement methods and pedagogical approaches specific to grades 4 & 5 for the ECG endorsement.

Prereq: Enrollment in the Early Childhood Generalist endorsement program, or Jr or Sr standing in BSEd in ECE.

**5189.22 Field Experience: Middle Childhood Generalist Endorsement U G 1**

This field experience is designed to provide an opportunity to work with a mentor teacher to gain insight into: best practices in lesson planning, teaching, and classroom management; student learning, interests, and perspectives; how to effectively implement methods and pedagogical approaches specific to grades 4-6 grade MCG content areas.

Prereq: Enrollment in the Middle Childhood Generalist endorsement program, or Jr or Sr standing in BSEd in MCE.

**5189.33 Field Experience Bilingual Endorsement U G 1 - 3**

Opportunity to work with a mentor teacher to gain insight into best practices in lesson planning, teaching, and classroom management; student learning, interests, and perspectives; how to effectively implement methods and pedagogical approaches specific to bilingual students and bilingual, dual language, and/or immersion classrooms.

Prereq: Enrollment in the Bilingual Endorsement program. Prereq or concur: 5303.

**5189.66 Planned Field Experience: TESOL U G 1 - 15**

This course comprises and complements the field experience in which students in the TESOL endorsement are required to take part. The course is used primarily as a place where students can reflect upon and discuss what they have observed in their field experience with LEP students.

Prereq: Enrollment in Grad-level TESOL Endorsement, and permission of instructor.

Repeatable to a maximum of 30 cr hrs or 4 completions.

**5191 Orientation and Mobility Internship U G 4**

This internship requires direct O&M assessment, planning and instruction of a variety of students within at least one setting (e.g., private agency, state school for the blind, and/or a VA Blind Rehabilitation Center) under the supervision of a COMS. Students must complete all other program requirements prior to entering internship. Students must also complete at least 100 documented hours of field experience (supervised observation, co-teaching, and direct instruction) prior to beginning the O&M Internship.

Prereq: Admission to the Orientation and Mobility program.

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<b>5191.01</b>	<b>Supervised Student Teaching Internship: Early Childhood Education</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice preK-3rd grade teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to Early Childhood Education major or MEd program. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5191.02</b>	<b>Supervised Student Teaching Internship: Middle Childhood Education</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice 4th-9th grade teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to Middle Childhood Education Major or MEd program. Repeatable to a maximum 30 cr hrs or 2 completions.			
<b>5191.03</b>	<b>Supervised Student Teaching Internship: English Language Education</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice 7-12 grade teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to English Language Arts Education Major or MEd program. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5191.04</b>	<b>Supervised Student Teaching Internship: Integrated Social Studies</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice 7-12 grade teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to Integrated Social Studies MEd program. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5191.05</b>	<b>Supervised Student Teaching Internship: Visual Impairment</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice visual impairment teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to Early Childhood Education Major with Visual Impairment specialization, Grad non-degree visual impairment licensure only program, MA in Sensory Impairment program, or MEd program in Visual Impairment. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5191.06</b>	<b>Supervised Student Teaching Internship: World Language Education</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice World Language teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to World Language Education Major or MEd program. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5191.07</b>	<b>Supervised Student Teaching Internship: STEM Education</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice STEM, 7-12th grade teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to STEM Education Major or MEd program. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5191.08</b>	<b>Supervised Student Teaching Internship: TESOL</b>	<b>U G</b>	<b>3 - 15</b>
Student teaching is designed to assess and support preservice TESOL teachers as they develop the necessary knowledge, skills, and dispositions required for beginning level teachers. Prereq: Admission to TESOL Major. Repeatable to a maximum of 30 cr hrs or 2 completions.			
<b>5195.01</b>	<b>Reflective Seminar: Early Childhood Education</b>	<b>U G</b>	<b>1 - 4</b>
This course serves as the place for mediating learning & applying it to the practical. You will engage in reading, discussion, & reflection to develop your understanding of the relationship between what you learn in the university classroom & what you experience in the elementary classroom. Prereq: Admission to Early Childhood Education Major or MEd program. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.02</b>	<b>Reflective Seminar: Middle Childhood Education</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to Middle Childhood Education Major or MEd program. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.03</b>	<b>Reflective Seminar: English Language Education</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to English Language Arts Education Major or MEd program. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			

<b>5195.04</b>	<b>Reflective Seminar: integrated Social Studies</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to Integrated Social Studies MEd program. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.05</b>	<b>Reflective Seminar: Visual Impairment</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to Early Childhood Education Major with Visual Impairment specialization, Grad non-degree visual impairment licensure only program, MA in Sensory Impairment program, or MEd program in Visual Impairment. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.06</b>	<b>Reflective Seminar: World Language Education</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to World Language Education Major or MEd program. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.07</b>	<b>Reflective Seminar: STEM Education</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to STEM Education Major or MEd program. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.08</b>	<b>Reflective Seminar: TESOL</b>	<b>U G</b>	<b>1 - 4</b>
Reflective Seminar is part one of a 3-part seminar that takes place over the course of 3 semesters. This course includes what is often viewed as the more traditional 'science' of teacher preparation. Prereq: Admission to TESOL Major. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5195.09</b>	<b>Reflective Seminar: Child and Youth Studies</b>	<b>U G</b>	<b>1 - 4</b>
This course is designed to assess and support student in their final year as they develop the necessary knowledge, skills, and dispositions required for entry level education professionals. Prereq: Admission to Child and Youth Studies Major. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5220</b>	<b>Foundations of Middle Childhood Teaching and Learning</b>	<b>U G</b>	<b>3</b>
Introduces the foundations and major concerns in middle childhood education using contemporary research, scholarship, and practice, and exploring traditional and newer course materials. Prereq: Not open to students with credit for 601 and 603.			
<b>5225</b>	<b>Diverse Literature and Comprehension - Elementary-Middle Education</b>	<b>U G</b>	<b>3</b>
Meets state requirements for understanding theory and methods linking the teachers' understanding of diverse literature with comprehension theory and practice and the related construction of literate environments.			
<b>5226</b>	<b>Composing Print + Digital Multimodal Texts</b>	<b>U G</b>	<b>3</b>
This course focuses on interactive, creative, critical, dialogic approaches for teaching and learning composing in both print and digital multimodal formats, and is particularly applicable to early and middle childhood classrooms.			
<b>5230</b>	<b>Language Arts Methods for Preservice Middle Childhood Teachers</b>	<b>U G</b>	<b>3</b>
Preservice teachers study methods for teaching middle childhood students' reading and writing. They explore the significance of students' interests, language, and communities to their knowledge and meaning-making of the Language Arts. Prereq: Not open to students with credit for 706.			
<b>5270</b>	<b>Mathematics Methods for Preservice Middle Childhood Teachers</b>	<b>U G</b>	<b>3</b>
Preservice teachers study methods for teaching middle childhood mathematics. These methods include instruction, assessment, and learning theory to support the teaching and learning of mathematics in grades 4 through 9.			
<b>5275</b>	<b>Science Methods for Preservice Middle Childhood Teachers</b>	<b>U G</b>	<b>3</b>
Prospective teachers study methods of science instruction and assessment of student learning in grades 4 through 9, with an emphasis on inquiry-based learning and formative assessment of student understanding. Prereq: Not open to students with credit for 719.			
<b>5280</b>	<b>Social Studies Methods for Preservice Middle Childhood Teachers</b>	<b>U G</b>	<b>3</b>
Preservice teachers study planning, teaching and assessing of students' learning of social studies education, emphasizing the value of using effective and diverse teaching strategies and meaningful learning activities appropriate for grades 4-9. Prereq: Not open to students with credit for 738.			

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### 5281 Development of 4th and 5th Grade Learners Across the Curriculum U G 3

Aids students in acquiring a working understanding of the physical, cognitive and language development of the children in 4th/5th grades.

Prereq: 3160 or HDFS 2410, and EduTL 3189, 4189, or 5189; or Grad standing.

### 5282 The Social Transitions of 4th and 5th Grade Learners U G 3

Focuses on the social and emotional development of the early adolescent in society, home and in the classroom setting.

Prereq: 3160 or HDFS 2410, and EduTL 3189, 4189, or 5189; or Grad standing.

### 5283 Teaching Mathematics, Science and Culture in 4th and 5th Grades U G 3

Related to teaching mathematics and science with consideration of pedagogy, content, assessment and equity.

Prereq: 5108 and 5129; or Grad standing.

### 5284 Integrating Language Arts and Social Studies in 4th and 5th Grades U G 3

Related to the integration of LA/SS. The focus is on curriculum, pedagogy, and integration specific to 4th/5th grades.

Prereq: 5102, 5137, and 5339; or Grad standing.

### 5301 Foundations of Bilingual Education U G 3

This course will provide a space to discuss and deconstruct the history, theoretical foundations, and practices of bilingual education in the United States, with a particular focus on the experiences of immigrant children. Participants will explore the definitions and characteristics of bilingual education, including its historical, political, legal, and ideological foundations.

### 5302 Assessing Bilingual Learners U G 3

Introduces participants to current school-based assessments through psychometric and socio-cultural models of assessment focusing on how schools measure language and achievement for emergent bilinguals.

Prereq: 5301 and 5365.

### 5303 Methods & Materials in Bilingual/Multilingual Education U G 3

Overview of instructional approaches and curricular materials designed to promote the language, literacy, and content learning of bilingual students. Participants will have the opportunity to familiarize themselves with relevant approaches and materials through course readings, class activities, and extension activities outside of class.

Prereq: 5301, 5302, 5365, and 5370.

### 5330 LGBTQ+-themed Literature for Children and Young Adults U G 3

This course focuses on children and young adult literature that represents the diversity of lesbian, gay, bisexual, transgender, queer, and other non-heterosexual and non-cisgender people across social dimensions defined by race, class, religion, and nationality, among others. It takes a historical view before focusing closely.

### 5339 Evaluation and Instructional Decision-Making in Literacy U G 3

Assessment instruments and processes to determine students' abilities and needs and instructional strategies to meet those needs as useful to early and/or middle childhood teachers are explored.

Prereq: 5469, and enrollment in a B.S. Ed. major or Master of Education program. Not open to students with credit for 705 or 739.

### 5341 Journalism and New Media in the 7-12 Classroom U G 3

Designed for pre-service teachers who plan to teach school newspaper, yearbook, broadcast and news media in middle school or high school (grades 7-12).

### 5345 Teacher Inquiry & Methods: Writing U G 3

Designed to assist students to understand writing development to develop process-oriented approaches to writing instruction.

Prereq: Admission to the Teaching & Learning B.S.Ed. or M.Ed. program. Not open to students with credit for 645.

### 5346 Teacher Inquiry & Methods: Literature U G 3

Designed to assist students in learning about literary understanding and in developing pedagogical content knowledge for teaching environment-oriented approaches to literature instruction. Laboratory experience required.

Prereq: Admission to B.S.Ed., M.Ed., EHE major, or permission of instructor. Not open to students with credit for 646.

### 5362 Roots of Fantasy U G 3

A study of selected works of fantasy for children grades 4-9 along with their source in traditional literature; works based on Greek and Arthurian legends, the Welsh Mabinogion and other folklore.

Prereq: Not open to students with credit for 862.

### 5365 Linguistics for Literacy Education U G 3

This is an introduction to educational linguistics. Through exploration of linguistic concepts and their relevance to teaching, learning, and literacy, students develop new ways of seeing and supporting students' development as skilled language users.

Prereq: Not open to students with credit for 665.

### 5370 Language and Literacy Development & Instruction for Bilingual Learners U G 3

This course provides an overview of key research on bilingual and biliteracy development with a focus on children who are learning and living in two (or more) languages in their homes, communities, and schools. Course examines the complexity of bilingualism and biliteracy, including the influences on and processes of bilingual/biliteracy development and the roles of culture in schooling.

Prereq: Level 1 and Level 2 courses, and enrollment in the Reading Endorsement; or 5301 and 5365, and enrollment in the Bilingual Education Endorsement.

### 5442 Teaching Reading Across the Curriculum U G 3

Provides the knowledge and tools needed to support the developmental reading and literacy skills for students seeking licensure in AYA (7-12), multi-age and Voc Ed programs. Laboratory experience required.

Prereq: Admission to B.S.Ed., M.Ed., EHE major, Agriscience Ed major, or permission of instructor. Not open to students with credit for 642.

### 5453 Critical Literacy in Content Area Classrooms U G 3

Teaches teachers to provide the support many students need throughout their schooling to develop their literacy skills in content areas; recognizing that learning the discourses of various fields and genres is a life-long endeavor.

Prereq: Not open to students with credit for 853.

### 5455 Hiphop Literacies U G 3

Combines the study of Hiphop Based Education and new literacy studies. Students will investigate Hiphop cultural arts and discourses of everyday life as a form of culturally relevant teaching and learning.

### 5468 Foundations of Reading and Literacy U G 3

Introduction to the theories and practices of teaching and learning of literacy for children in early and middle childhood. Major themes of the course are a child-centered philosophy of literacy instruction and diversity awareness - the need for teachers to be aware of the diversity of backgrounds and abilities that children bring to the classroom and of strategies for dealing with that diversity.

### 5469 Language and Word Study for All Learners U G 3

This course provides a detailed examination of the ways that oral and written languages work and how this supports development of English word reading and spelling skills for learners who are monolingual speakers of Standard English as well as those who speak other languages and varieties of English.

Prereq: 5468.

### 5470 Assessment and Instruction for Struggling Readers U G 3

Provides an introduction to theories, assessments, and instructional practices that effectively address the literacy needs of struggling and at-risk readers. Laboratory experience required.

Prereq: 5468 and 5469, or permission of instructor.

### 5471 Clinical Practice in Treating Reading Disabilities U G 3

Use of test materials in the diagnosis of reading disabilities; practice with remedial procedures.

Prereq: 5470, or permission of instructor. Not open to students with credit for 671. Repeatable to a maximum of 6 or hrs.

### 5501 Inclusion: Philosophical, Social, and Practice Issues: General Student Body U G 3

Philosophical, social, and practice issues related to the inclusion of students with disabilities in the P-12 general education classroom.

Prereq: Not open to students with credit for 809.07.

### 5505 Multi-Tiered Systems of Support U G 3

Introduces students to the concept of multi-tiered systems of support. Emphasis on 1) strategies for assessing and teaching social skills to diverse learners in inclusive classrooms; 2) designing and implementing multi-tiered instructions within Response-to-Intervention Model; 3) collaborative differentiated instruction for whole class, small group, one-on-one teaching.

Prereq: 5501 or ESSpED 5650. Cross-listed in ESSpED.

### 5506 Reading and Writing Braille U G 3

This course provides future teachers of the visually impaired an efficient, learn-by-doing experience to attain mastery of the literary braille code and to develop positive attitudes toward this valuable medium. The essential features and rules of usage of the braille code as published in The Rules of Unified English Braille (UEB), 2nd Edition (2013) are presented.

Prereq: Not open to students with credit for 6505 or 833.

### 5507 Visual Processes U G 3

Introduces students to the historical foundations, laws, and regulations that effect students with visual impairments. Students will also learn about anatomy and physiology of the eye, diseases, disorders, and eye specialists' reports.

### 5508 Modes of Communication and Instructional Materials for Students with Visual Disabilities U G 1

Continuation of the examination of expressive modes of written communication with a focus on the Nemeth Code for mathematics and science. Knowledge of teaching strategies for mathematics is also studied.

Prereq: 6505 or 5505. Not open to students with credit for 6506.

### 5510 Basics of Orientation and Mobility U G 2

Presents an overview of the major historical events, mobility systems, resources, accessibility, safety, and roles of the O&M provider. Basic O&M techniques and instructional strategies are also provided.

<b>5521</b>	<b>Co-Teaching and Co-Planning in the Inclusive Classroom</b>	<b>U G</b>	<b>3</b>
This three-credit hour course will examine the co-teaching and co-planning process across subject matter and disciplines such as general education and special education. Students will learn the approaches to co-teaching and co-planning, critically analyze the roles and responsibilities of each team member in the process, and contextually analyze leadership roles within the process.			
<b>5525</b>	<b>Curriculum and Instruction for Students with Visual Impairments and Multiple Disabilities</b>	<b>U G</b>	<b>3</b>
Introduces individuals to principles of curricular and instructional design for all children with visual impairments (K-12). Adaptations and modifications, especially for the general education curriculum, are emphasized. Prereq: Not open to students with credit for 6501 or 747.			
<b>5529</b>	<b>Introduction to Visual Impairments</b>	<b>U G</b>	<b>1</b>
This course explores theories and practices that connect relationships between general and special education needs of students with visual impairments, highlighting the use of a merged model of collaboration within learning environments. Coursework addresses an overview of services for students with visual impairments, including an emphasis on impact of vision loss.			
<b>5530</b>	<b>Professional Development in the Field of Visual Impairment</b>	<b>U G</b>	<b>3</b>
Designed to allow the student to develop knowledge and skills in adaptive technology, early childhood intervention, and issues that are unique to the field of visual impairments. Prereq: 5506, 5507, or 6507.			
<b>5610</b>	<b>Language Arts &amp; ESL Instruction</b>	<b>U G</b>	<b>3</b>
Research, theories, and practices linking second language acquisition and methods of teaching reading, writing, listening, speaking and grammar in ESL and EFL classrooms. Prereq: Admission to an undergraduate, graduate, or graduate non-degree program. Not open to students with credit for 606.			
<b>5612</b>	<b>Secondary Methods in World Language Education</b>	<b>U G</b>	<b>3</b>
Theory and practice of teaching world language in secondary (middle and high school) classrooms; use and preparation of instructional materials current theory and practice in world language teaching, learning, and assessment. Meets concurrently with 5613. Prereq: Enrollment in Foreign Language B.S. Ed. or Master in Education program.			
<b>5613</b>	<b>Core Practices in World Language Education</b>	<b>U G</b>	<b>3</b>
This course will present theory and practice of teaching world language in beginning classes, based on current research on a practice-based approach to learning to teach focused on core practices. Teacher candidates will apply the practices studied in their field-based experience in the P-12 classroom, as preparation for the student teaching experience. Prereq: Enrollment in World Language B.S. Ed. or M. Ed. program, or enrollment in Graduate Certificate in Core Practices in World Language Education.			
<b>5614</b>	<b>Teaching of Foreign Language in the Elementary School</b>	<b>U G</b>	<b>3</b>
Skill development in teaching of spoken and written foreign language on the elementary school level; construction and use of suitable materials; discussion of issues and problems, evaluation. Prereq: Enrollment in Foreign Language B.S. Ed. or Foreign Language Master of Education. Not open to students with credit for 617.			
<b>5615</b>	<b>Methods and Culture in TESOL</b>	<b>U G</b>	<b>3</b>
Study of the use of new instructional materials for intermediate and advanced TESOL classes; teaching of reading, writing, literature, and culture; evaluation. Prereq: Enrollment in Education major, Master in Education program, graduate non-degree or undergraduate non-degree (Extended Education) program.			
<b>5616</b>	<b>Core Practices for World Language Assessment</b>	<b>U G</b>	<b>3</b>
This course familiarizes students with current theory, standards, principles and practices of world language assessment. An understanding of the World-Readiness Standards for Language Learning is necessary for this course, since we will build up on this foundational knowledge to design formative and summative performance assessments using backward design.			
<b>5618</b>	<b>Advanced Core Practices in World Language Education</b>	<b>U G</b>	<b>3</b>
As the final course in the Graduate Certificate Program in Core Practices in World Language Education, this course caps participants' repertoire of core practices addressed in the certificate program.			
<b>5620</b>	<b>Introduction to Second Language Acquisition</b>	<b>U G</b>	<b>3</b>
Studies of the theories underlying the teaching and learning of English as a second language and bilingual education: analyses of curricular designs and innovative programs. Prereq: Enrollment in Education major, Master in Education program, graduate non-degree or undergraduate non-degree (Extended Education) program.			
<b>5630</b>	<b>Teaching Second Language Grammar and Vocabulary</b>	<b>U G</b>	<b>3</b>
Focuses on the teaching of grammar and vocabulary to second language learners. Various theories, models, and techniques associated with grammar and vocabulary instruction and learning are reviewed, and students gain hands-on experience in the application of this material. Prereq: Enrollment in a Grad or undergraduate program in EduTL, or Grad non-degree program.			

<b>5640</b>	<b>Syllabus and Materials Development in Second Language Teaching</b>	<b>U G</b>	<b>3</b>
The development of syllabi and materials for language courses in alignment with theories of second language learning. Prereq: Enrollment in Education major or Master in Education program. Not open to students with credit for 868.			
<b>5645</b>	<b>Assessing L2 Learning</b>	<b>U G</b>	<b>3</b>
Focuses on theories, models, and techniques associated with second language students' learning and language proficiency with the aim of preparing students to critique established testing procedures and develop their own assessment instruments. Prereq: Enrollment in a Grad or undergraduate EduTL program, or Grad non-degree.			
<b>5700</b>	<b>Training in Informal Science Outreach</b>	<b>U G</b>	<b>3</b>
Provides students with hands-on training in informal science education at the COSI museum. All students will learn to provide outreach education at the museum; advanced students will develop outreach materials, assist in the visible research operations, and mentor other students. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Cross-listed in Psych and Ling.			
<b>5711</b>	<b>Methods in Teaching STEM Secondary Mathematics I</b>	<b>U G</b>	<b>3</b>
Increase pedagogical content knowledge of number and probability concepts as appropriate for secondary students. Concepts such as ratio, fractions, decimals, percents, proportionality, data analysis and probability will be included. Prereq: Admission to major or M.Ed. Not open to students with credit for 621 and 749.			
<b>5712</b>	<b>Methods in Teaching STEM Secondary Mathematics II</b>	<b>U G</b>	<b>3</b>
Pedagogical content knowledge of geometry and measurement as appropriate for Grades 7-12. Concepts such as similarity, transformations, representations, justification, and spatial reasoning will be included. Prereq: Admission to the STEM major or M.Ed. Not open to students with credit for 749.01.			
<b>5721</b>	<b>Methods in Teaching STEM Secondary Science: I</b>	<b>U G</b>	<b>3</b>
Preservice science teachers are introduced to the principles of safe scientific inquiry through activity-based lessons for grades 7-12. Microteaching experiences offer opportunities for students to develop and present science lessons. Prereq: Enrollment to Education major or Master in Education program. Not open to students with credit for 636.01.			
<b>5722</b>	<b>Methods in Teaching STEM Secondary Science II</b>	<b>U G</b>	<b>5</b>
The nature of science is viewed from scientific, philosophical, sociological, and historical perspectives. Ideas fundamental to all science fields such as observation, inference, inquiry, hypothesis testing, models, theories, and laws are addressed. Prereq: Enrollment to Education major or Master in Education program. Not open to students with credit for 751.			
<b>5741</b>	<b>Learning, Cognition, and Teaching in STEM Education</b>	<b>U G</b>	<b>3</b>
Cognitive development, cognition and affect in the learning of STEM subjects with implications for teaching in secondary school STEM.			
<b>5744</b>	<b>Technologies Used in STEM</b>	<b>U G</b>	<b>3</b>
The role and scope of educational technology for standards based STEM instruction. Exploration of areas in which mathematics, science education, and technology education can effectively use educational technology in a pedagogically sound manner. Prereq: Not open to students with credit for 750.			
<b>5745</b>	<b>Assessment in STEM I: Introduction</b>	<b>U G</b>	<b>3</b>
Explores how prior knowledge and reasoning strategies impact meaningful learning in STEM fields. Discussions of assessment design and evaluation are framed within a value-added model of STEM teaching and learning. Prereq: Admission to major or M.Ed. Not open to students with credit for 748.01.			
<b>5798</b>	<b>Study Tour</b>	<b>U G</b>	<b>1 - 3</b>
Specific content, location, terms of offering, and prerequisites vary; contact school office for details. Repeatable to different titled study tours only. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>5808</b>	<b>Social Studies Methods I</b>	<b>U G</b>	<b>4</b>
Integrates methods of teaching social studies with daily field experiences to effect authentic teaching and learning for preservice teachers. Prereq: Admission to MEd program and completion of content courses. Not open to students with credit for 638.			
<b>5809</b>	<b>Social Studies Methods II</b>	<b>U G</b>	<b>3</b>
Focuses on lesson/unit planning with an emphasis on authentic learning, higher level thinking skills, global and multicultural perspectives, active learning strategies, and performance-based assessment. Prereq: Enrollment in Master of Education program and completion of content courses. Not open to students with credit for 639.			
<b>5892</b>	<b>Workshop</b>	<b>U G</b>	<b>1 - 4</b>
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			

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**5901 Advanced English as a Second Language U G 3**

Provides English language learners with extensive field-specific writing practice, with an emphasis on academic writing conventions, grammatical accuracy, and syntactic complexity. Intended for graduate students.

Prereq: Grad standing, and placement test.

**5902 Academic Writing in English as a Second Language U G 3**

Attention given to various practices involving reading and source-based writing. Rhetorical and linguistic issues addressed. Writing about and presenting research findings in specific disciplines.

Prereq: A grade of D or above in 5901, or placement test score of 5902; and Grad standing.

**5992 Special Topics in Education U G 1 - 3**

Special topics focused on education.

Repeatable to a maximum of 12 cr hrs or 4 completions.

**6050 Multiple Perspectives on Teaching and Learning: MA G 3 - 4**

Investigates diverse ways of conceptualizing cognitive development and its relationship to learning and teaching and examine specific factors such as the development of memory, attention, problem solving, and specific academic skills.

Prereq: Not open to students with credit for 871.

**6052 Classroom-Based Inquiry: MA G 3 - 4**

Focuses on the history and evolving status of classroom-based inquiry and teacher action research. Students will develop a proposal for a classroom-based inquiry project, and will practice collecting and analyzing data and summarizing findings.

Prereq: Not open to students with credit for 874.

**6053 Balanced Assessment for Teaching and Learning G 3**

Organized to follow the conceptualization, design, and implementation of a balanced, coordinated approach to formative instructional and assessment practices.

**6101 Dramatic Inquiry Across the Curriculum G 3**

Using drama to extend inquiry-based learning in literacy and content areas.

Prereq: Not open to students with credit for 777. Repeatable to a maximum of 6 cr hrs.

**6189 O&M Field Placement G 1**

This one (1) hour graduate level course includes field experience requirements for students enrolled in the O&M Program.

Prereq: Enrollment in the Orientation and Mobility licensure program.

**6301 Exploring Language and Learning in Classrooms G 3**

Introduction to the use of discourse analysis in classroom instruction. Focus on principles, practices, analysis of instructional conversations, and implications for enhancing student learning. The course engages students in conducting discourse analyses of their own classrooms. Students must currently be teaching or co-teaching in a classroom and be able to video record events in that classroom.

Prereq: Enrollment in either M.A or M.Ed programs; or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**6302 Teaching Digital Composition in Elementary and Secondary Classrooms G 3**

Intended for elementary and secondary in-service teachers who want to explore and improve their students use of digital composition. The course emphasizes teachers using digital composition themselves as well as design of instruction for promoting students' use of digital composition.

Prereq: 7393, or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**6303 Linguistic Diversity in Education G 3**

An introduction to linguistic diversity; how it relates to cultural diversity; how linguistic/cultural diversity shapes teaching and learning in educational settings; & what research says about effective instruction.

Prereq: Not open to students with credit for 703.07.

**6510 Orientation and Mobility Intermediate Seminar G 3**

Introduces a view of the history of the profession of orientation and mobility. It provides students with a foundation of understanding the process of planning, skill assessment, goal-setting, and designing and sequencing O&M programs.

Prereq: 5510 and 5507.

**6511 Orientation and Mobility Advanced Seminar G 3**

Presents important background information for Orientation and Mobility practitioners upon which techniques for instruction may be based. Unique characteristics of environments and principles for accessing them are presented.

Prereq: 6510.

**6512 Orientation and Mobility Special Topics Seminar G 2**

Highlights strategies for adaptations for early childhood and geriatric populations in the area of orientation and mobility. Considerations encountered in working with both types of populations explored.

Prereq: 6511.

**6520 Orientation and Mobility Techniques and Methods I G 2**

Covers introduction of the long cane, adaptive mobility devices, indoor travel, indoor orientation skills, route travel and residential travel skills. Practical instruction under a blindfold is a major component.

Prereq: 5510 and 5507.

**6521 Orientation and Mobility Techniques and Methods II G 2**

This hands-on course covers O&M techniques and methods for business areas, special travel environments, and public transportation. Practical skill instruction under blindfold is a major component of this course.

Prereq: 6520.

**6645 Language as a Resource: The Functions of Language in Teaching and Learning G 3**

The functions of language in teaching, learning, and schooling in general can reveal the underlying features of language use in these contexts. Whether in content-area literacy, Bilingual Education, Teaching English to Speakers of Other Languages (TESOL), or World Language Education, this course explores the language choices available based on the particular context in which language is used.

**6808 Multicultural and Global Perspectives on Teaching and Learning G 3 - 4**

Examines knowledge, pedagogy, reforms, and resources that support education for cultural diversity and equity in an interconnected world.

Prereq: Not open to students with credit for 881.

**6890 M.Ed Capstone Seminar G 3**

Seminar to prepare M.Ed students for the comprehensive written examination or approved alternative.

Prereq: Not open to students with credit for 926.

**6891 M.A. Capstone Seminar G 2**

Provides guidance for M.A. students working on final action research projects (or other approved projects), writing thesis proposals or preparing for the comprehensive examination.

Prereq: Not open to students with credit for 928.

**6892 Special Topics in Education G 1 - 4**

Special topics for professional educators and graduate students; designed to provide the opportunity to update professional skills and review current research developments.

Repeatable to a maximum of 16 cr hrs or 16 completions. This course is graded S/U.

**6894 Co-Planning & Co-Teaching for Mentors of Interns G 1**

Teachers will learn about a new model for mentoring student teachers that focuses on student learning. This apprenticeship model essentially causes the team to build strong working relationships. Teachers will learn how to make teaching decisions public so that the intern becomes better prepared to teach. Co-Planning & Co-Teaching is becoming the preferred model for mentoring student teachers.

This course is graded S/U.

**6911 Writing for Coursework for International and 2nd Language Graduate Students G 2**

Guidance and practice with writing in various genres essential to an academic career-essays, reviews, reports-the kind of writing required in grad-level coursework and end-of-term and comp. Tutorial time arranged. Intended for international graduate students.

Prereq: 5902, or qualified status; and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**6912 Research Writing for International and 2nd Language Graduate Students G 2**

Designed to help international graduate students in preparing a conference paper and in preparing a manuscript for publication.

Prereq: 5902, or qualified status; and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**6913 Thesis Proposal and Dissertation Writing for International and 2nd Language Graduate Students G 2**

Assist international graduate students in writing their thesis, dissertation, or thesis/dissertation proposal. Tutorial time arranged. Intended for international graduate students.

Prereq: 5902 (508), or qualified status; and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**7008 Sociocultural Studies of Teaching and Teacher Education G 3**

A sociocultural look at ways teaching as a profession has been shaped by history, culture, gender; multiple agendas for teacher education; structure of current practice; different programs of reform; studies of teacher education.

**7010 Diverse Approaches to Research on Teaching and Learning G 3 - 4**

Explores the wide range of teaching and learning research genres; including multiple forms of statistical (quantitative), ethnographic (qualitative), historical and theoretical scholarship on teaching and learning.

Prereq: Not open to students with credit for 842.

**7014 Epistemologies and Theories in Multicultural and Equity Studies in Education G 3**

Examine and focus in depth on various critical epistemologies, theories, and assumptions and the relationships between them and the pursuit of social justice.

Prereq: Not open to students with credit for 940.

**7015 Curricular Approaches in Multicultural and Equity Studies in Education G 3**

Provides an overview of curricular approaches in MESE drawn from local, national and global scholarship and contexts. Students examine a variety of curricular approaches towards social justice and activist praxis in education.



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<b>7025</b>	<b>Culturally Relevant Pedagogy</b>	<b>G</b>	<b>3</b>
Focuses on the research that informs culturally relevant pedagogy.			
<b>7035</b>	<b>Teaching for Social Justice</b>	<b>G</b>	<b>3</b>
An exploration into economic, political, technological and ecological components of multicultural education as it relates to diversity and social justice. Prereq: Not open to students with credit for 879.			
<b>7075</b>	<b>Disabilities in Education</b>	<b>G</b>	<b>3</b>
This three-credit graduate course for both MA and Ph.D. students will examine the historical nature of disabilities in society and in particular in the education system, the foundation of public laws to benefit persons with disabilities, the family- community connection for students with disabilities, and current critical issues for students with disabilities in classrooms.			
<b>7102</b>	<b>Drama, Literacy, and Learning</b>	<b>G</b>	<b>3</b>
Advanced studies in how drama affects literacy and learning. Prereq: Not open to students with credit for 888. Repeatable to a maximum of 6 cr hrs.			
<b>7170</b>	<b>Rethinking Early Childhood and Elementary Education: The Politics of Childhood</b>	<b>G</b>	<b>3</b>
Examination of important classical and contemporary research concerning young children with a focus on the preschool-early elementary years.			
<b>7189</b>	<b>Advanced Field Placement</b>	<b>G</b>	<b>1 - 12</b>
Field or research experience in a P-12 school, higher education or other educational setting, agency, or cross-cultural settings. Repeatable to a maximum of 20 cr hrs or 4 completions. This course is graded S/U.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 15</b>
Individual study projects. For thesis option, not more than 12 cr hrs will apply toward the master's degree. For non-thesis option, not more than 15 cr hrs will apply. Not more than 20 cr hrs will apply toward the doctoral degree. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group studies on special problems in education. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>7303</b>	<b>Language and Society</b>	<b>G</b>	<b>3</b>
Focuses on the history, sociology, and the politics of national policies involving second language throughout the world. Prereq: Not open to students with credit for 803.			
<b>7306</b>	<b>Language Socialization</b>	<b>G</b>	<b>3</b>
Introduces the field of language socialization, providing theoretical, conceptual and methodological frameworks for research on linguistic and social development, teaching, and learning in various contexts. Prereq: Not open to students with credit for 906.			
<b>7308</b>	<b>Literary Experience and Understanding: Readers, Texts and Contexts</b>	<b>G</b>	<b>3</b>
Examines historical and current research on the interrelationships among children's and young adults' literary experiences, understanding, qualities of literary genres and formats, and reading in educational contexts. Prereq: Not open to students with credit for 908.			
<b>7316</b>	<b>Language Arts in the Early and Middle Childhood Program</b>	<b>G</b>	<b>3</b>
Process and support for language development in the early years. Problems, research, and current teaching method in the major areas of language arts: listening, speaking, reading, writing, viewing, and constructing images. Prereq: Not open to students with credit for 860.			
<b>7317</b>	<b>Advanced Children's Literature</b>	<b>G</b>	<b>3</b>
An evaluation of the changing role of children's literature in the education of children and youth; emphasis on identifying quality selections developmentally appropriate books. Prereq: Not open to students with credit for 817.			
<b>7324</b>	<b>Literary Theory and Adolescent Literature</b>	<b>G</b>	<b>3</b>
Explores the application of diverse theories to young adult literature for in-depth literary study in secondary classrooms. Prereq: Not open to students with credit for 923.			
<b>7341</b>	<b>Poetry for Children</b>	<b>G</b>	<b>3</b>
In-depth study of poetry for children including children's speech play & school yard rhymes, children's interests in poetry, forms of poetry & representative poets, classroom approaches for encouraging children's involvement & appreciation of poetry. Prereq: Grad standing.			
<b>7344</b>	<b>Bilingualism and Biliteracy</b>	<b>G</b>	<b>3</b>
Explores research on bilingualism, bilingual communities, and bilingual education, as well as methods for studying bilingualism in social context. Issues are viewed from global perspective, especially language policies and language ideologies. Prereq: Not open to students with credit for 844.			

<b>7348</b>	<b>Linguistic Diversity and Literacy: Varieties of English and Education</b>	<b>G</b>	<b>3</b>
Explores variation in English and its implications for literacy education, focusing on global Englishes, U.S. vernaculars, and English-based Creoles. Course considers use of research for school testing and for the teaching of Academic English. Prereq: Not open to students with credit for 848.			
<b>7356</b>	<b>Advanced Literature for Adolescents</b>	<b>G</b>	<b>3</b>
An evaluation of literature for adolescents and the role it plays in the education of youth. Prereq: Not open to students with credit for 856.			
<b>7361</b>	<b>Literature in Early Childhood Education</b>	<b>G</b>	<b>3</b>
Analysis and study of fiction and nonfiction for children age 2-8; emphasis on the importance of early exposure to literature for language acquisition visual literacy, and cognitive and affective development. Prereq: Not open to students with credit for 861.			
<b>7364</b>	<b>Multicultural Literature for Children and Young Adults</b>	<b>G</b>	<b>3</b>
Focus on educational and interdisciplinary research concerned with selecting, analyzing, and discussing diverse children's and YA literature, created by historically marginalized authors and illustrators. Literature selections include the life experiences, histories, and fantastic visions representing LGBTQ, Native American, African American, Latinx, Asian American, and new immigrant experiences. Prereq: Not open to students with credit for 864.			
<b>7371</b>	<b>Teaching Writing in the Secondary School</b>	<b>G</b>	<b>2 - 3</b>
Designed to assist teachers' understanding of writing development and writing assessment in order to develop process-oriented approaches to writing instruction. Prereq: Not open to students with credit for 970.			
<b>7374</b>	<b>Sociocultural Theory and Literacy Education and Research</b>	<b>G</b>	<b>3</b>
Examines the core concepts of sociocultural theory, several branches of this work in education, and their implications for contemporary studies of literacy teaching and learning. Prereq: Not open to students with credit for 974.			
<b>7393</b>	<b>Teaching Writing</b>	<b>G</b>	<b>2 - 6</b>
Serves as the Summer Institute of the Columbus Area Writing Project. It focuses on improving the teaching of writing for experienced teachers of all subject areas in grades K-16. Prereq: Not open to students with credit for 898.			
<b>7418</b>	<b>Synthesizing Research in Reading and Literacy</b>	<b>G</b>	<b>3</b>
Students gain an in-depth understanding of how to review, analyze, and synthesize research in reading and literacy. The focus is on the process of reviewing and synthesizing research (rather than on the content). Repeatable to a maximum of 6 cr hrs.			
<b>7420</b>	<b>Teaching Literature for Engagement and Equity</b>	<b>G</b>	<b>3</b>
Study of theory and arts-based practices in reading and literature education, that demonstrate how teachers can support readers' engagement with cross-cultural perspectives, social positioning, cultural identity and social justice.			
<b>7427</b>	<b>Advanced Study of the Development of Reading and Writing</b>	<b>G</b>	<b>3</b>
Designed to provide experienced teachers the opportunity to extend and update their knowledge of reading and writing development and the principles underlying effective reading and writing instruction in the early and late childhood years.			
<b>7428</b>	<b>Trends and Issues in Teaching Reading</b>	<b>G</b>	<b>3</b>
In-depth examination of major trends and issues in teaching reading in the elementary school including research over the last three decades and major issues and concerns currently debated among members of the literacy education profession. Prereq: Not open to students with credit for 828.			
<b>7429</b>	<b>Reading Complex Texts</b>	<b>G</b>	<b>3</b>
For elementary, middle, and secondary teachers who want to develop new multimodal approaches for challenging students to read with greater attention to details and deeper meaning, with a more difficult range of vocabulary and texts.			
<b>7430</b>	<b>Phonics, Word Study, &amp; the Complexities of English Orthography</b>	<b>G</b>	<b>3</b>
Learn the historical influences on contemporary American-English spellings. Study the technical vocabulary associated with phonics, word study, & English orthography; how to administer and analyze appropriate assessments for elementary and middle school students; and, how to implement instruction to support student learning.			
<b>7431</b>	<b>The Ethnography of Literacy and Language I</b>	<b>G</b>	<b>4</b>
Introduces the ethnography of literacy and language as fields of inquiry, providing theoretical, conceptual and methodological frameworks for research on written and oral language practices that are embedded in various social, cultural, and political contexts. Prereq: Not open to students with credit for 905. This course is progress graded.			
<b>7432</b>	<b>The Ethnography of Literacy and Language II</b>	<b>G</b>	<b>4</b>
Building on the first course of this two-course sequence, this course provides students experience in doing their own research by focusing on data gathering, fieldwork issues, data analysis, and writing aspects of the ethnographic research process. Prereq: 7431 (905), or permission of instructor. Not open to students with credit for 925.10.			

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**7500 Teacher Leadership in Teaching Digital Writing** G 2

Prepares teachers and other educators to conceptualize and deliver teacher education for the integration of digital writing in K-12 classrooms. Through a series of face-to-face and online interactions, participants develop a portfolio of digital writing, a theoretical framework for the use of digital writing in instruction, and a research-based framework for professional development.

Prereq: 7393, or permission of instructor.

**7620 English as an International Language: Theory and Practice** G 3

Introduces students to the perspective of EIL (English as an International Language) and helps them to think critically about global English in use and English language teaching practices from the viewpoint of EIL.

**7645 Issues and Research in Foreign Language Testing and Assessment** G 3

Focuses on theories and practices for testing and assessing the knowledge and skills of second language learners. Topics include constructing tests and assessments, validity, reliability, grading, and test score interpretation test scores.

Prereq: Enrollment in a graduate program in T&L or graduate non-degree program. Not open to students with credit for 963.09.

**7701 Mathematics Teaching and Learning in Elementary and Middle Schools** G 3

Provides elementary or middle school teachers with skills and knowledge that will strengthen their teaching of mathematical content knowledge and process skills.

Prereq: Not open to students with credit for 812.

**7705 Cognition and Socio-Cultural Issues in School Mathematics** G 2

To be successful educators, participants need to have knowledge of child development, child psychology, and influences on student learning such as cultural diversity, limited English proficiency, gender, and physical challenges.

Prereq: Not open to students with credit for 721.01.

**7706 Science and Early Childhood Education** G 3

The nature, scope, and role of science experiences in the learning and development of young children; integration and application of current developments; theory and research in science with early childhood education.

Prereq: Not open to students with credit for 852.

**7711 K-6 Number and Algebra** G 2

Students will understand concepts such as number, number sense, variable, and equality through an opportunity to learn at a deeper level and to examine instructional strategies to help children.

Prereq: Not open to students with credit for 711.

**7712 K-6 Measurement and Geometry** G 2

Students will understand concepts such as spatial sense, units of measure, and work with two- and three-dimensional objects through an opportunity to learn at a deeper level and to examine instructional strategies to help children.

Prereq: Not open to students with credit for 711.

**7713 K-6 Data Analysis and Probability** G 2

Students will understand concepts such as chance and possible outcomes and predicting events as likely or unlikely, and testing predictions, and representational skills to depict and analyze data sets.

Prereq: Not open to students with credit for 711.

**7715 Learning Progressions in Mathematics Education** G 3

Examine the construction, use, and research on learning progressions in mathematics education.

Prereq: Not open to students with credit for 742.

**7716 Conceptual and Procedural Knowledge in Mathematics Education: Theory, Research, and Controversy** G 3

Examine research on students' learning of conceptual and procedural knowledge. We will carefully examine the nature of each type of knowledge, how they are acquired, how they are used, and how they are related.

**7717 Teaching Mathematics** G 3

Designed to provide an expanded view of the teaching of mathematics in grades 7-16 and current theories regarding best practices.

Prereq: Not open to students with credit for 802.03.

**7718 Student Learning Processes in Mathematics** G 3

Student cognition and learning. The topics of arithmetic, algebra and geometry will be used to explore issues of student thinking. We will investigate how the nature of these topics affect students' reasoning and problem solving and thinking.

Prereq: Not open to students with credit for 802.05.

**7719 Providing Professional Development in Mathematics Education** G 2

Require teachers to develop a professional development program that will provide them the opportunity to implement and reflect upon this development as a final assessment of their endorsement.

Prereq: Not open to students with credit for 714.

**7724 Teaching Evolution in Schools** G 3

Focuses on issues, alternative practices, and curricular approaches related to teaching evolution in public schools. Research, court cases, and policies related to the teaching of evolution are examined.

Prereq: Coursework in Evolutionary Biology, or teaching licensure in life science; or permission of instructor. Not open to students with credit for 875.

**7725 The Nature of Science and Implications for Science Teaching** G 3

Focuses on the nature of science and scientific knowledge from philosophical, historical, and sociological perspectives, examines the implications for science teaching at all levels, with particular emphasis on K-12 public education.

Prereq: Not open to students with credit for 877.

**7726 STEM Education in Informal Settings** G 3

Provides STEM educators with experiences to develop skills, content knowledge, professional knowledge, assessment strategies, and integration skills to maximize learning of all students in informal STEM settings.

Prereq: Not open to students with credit for 880.

**7731 Multimedia Tools For STEM Education** G 3

Introduction to a wide variety of multimedia tools for use in STEM Education. The tools are constantly changing but some of the areas included are sensors, data collection, graphics, animation, presentation, audio, video, and multimedia authoring.

Prereq: Not open to students with credit for 735. Repeatable to a maximum of 9 cr hrs.

**7732 Robotics and Automation for STEM Educators** G 3

An introduction to robotics and automation systems, their applications, and methods of teaching about and with them. Will include experiences related to the design, selection, set-up, and programming of robotic and automation systems.

Prereq: Not open to students with credit for 938.21.

**7741 Advanced Study of Learning and Cognition in STEM** G 3

Theories of learning and cognition as applied to learning, teaching and research in the STEM Education areas. Additional focus may be on affective issues.

Prereq: Not open to students with credit for 721.

**7744 Problem Solving in STEM** G 3

Help students gain a deeper understanding of the process of mathematical problem solving from an epistemological standpoint. Current theories and perspectives associated with teaching and learning problem solving will be studied.

Prereq: Not open to students with credit for 802.04.

**7745 Classroom Discourse in STEM Learning** G 3

Theory and practice on discourse patterns in STEM classrooms, including speaking, reading and writing to learn STEM subject matter in schools or colleges.

Prereq: Not open to students with credit for 802.

**7747 Science, Mathematics, Technology and the Educated Mind** G 3

Examines public understanding of science, mathematics, and technology in the growth and application of knowledge, with particular attention being given to the implications for general education in these fields.

**7749 History, Future, and Practical Applications of Concept Inventories in STEM Education** G 3

Introduction to creation, validation, evaluation and application of concept inventories in STEM education; a gateway course for future academic career in both STEM and education.

Prereq: Not open to students with credit for 610.

**7999 Thesis Research** G 1 - 15

Research for thesis purposes only.

Repeatable to a maximum of 40 cr hrs or 12 completions. This course is graded S/U.

**8001 Discourse Analysis and Educational Research I** G 4

Introduction to discourse analysis in educational research, theories, field work, data collection, analytic procedures including video and audio analysis, and ethics. First course of two course sequence.

Prereq: Permission of instructor. 8001 and 8002 must be taken in the same academic year.

Not open to students with credit for 933. Repeatable to a maximum of 8 cr hrs. This course is progress graded.

**8002 Discourse Analysis and Educational Research II** G 4

An in-depth exploration and application of discourse analysis theories and procedures for the analysis and interpretation of video, audio, and textual data collected in field-based educational research. This is the second course of two courses

Prereq: Permission of instructor. 8001 and 8002 must be taken in the same academic year.

Not open to students with credit for 934. Repeatable to a maximum of 8 cr hrs.

**8003 Theorizing and Researching Teaching and Learning** G 4

Examines how learning and teaching have been theorized and researched and provides an opportunity for students to begin conceptualizing their own studies. Emphasis is placed on teaching and learning as contextualized processes.

Prereq: Not open to students with credit for 975, 976, and 977.

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<b>8010</b>	<b>Critical Discourse Analysis</b>	<b>G</b>	<b>3</b>
Explores perspectives on discourse analytical research that primarily studies the way social power abuse, dominance, and inequality are enacted, reproduced, and resisted by text and talk in social and political contexts. Prereq: Must have taken at least 1 PhD level course. Not open to students with credit for 933.			
<b>8015</b>	<b>Diversity and Equity in Education</b>	<b>G</b>	<b>4</b>
Provides an overview of the pervasive individual, epistemological, structural, systemic, and institutional dimensions and complexities of equity, diversity and multiculturalism. Prereq: Not open to students with credit for 976.			
<b>8020</b>	<b>Critical Race Theory in Education</b>	<b>G</b>	<b>3</b>
Advanced doctoral seminar on Critical Race Theory and its application in education. Prereq: Not open to students with credit for 977.			
<b>8081</b>	<b>Introductory Seminar: Applied Developmental Science in Education</b>	<b>G</b>	<b>3</b>
An introductory professional seminar for doctoral students seeking the Interdisciplinary PhD Specialization in Applied Developmental Science in Education (ADS-E). Cross-listed in EducSt and HDFs.			
<b>8082</b>	<b>Capstone Seminar: Applied Developmental Science in Education</b>	<b>G</b>	<b>3</b>
A capstone professional seminar for doctoral students enrolled in the Interdisciplinary PhD Specialization in Applied Developmental Science in Education (ADS-E). Prereq: 8081 or EducSt 8081 or HDFs 8081. Cross-listed in EducSt and HDFs.			
<b>8301</b>	<b>Research and Theory on Adolescent, Post-Secondary, and Community Literacies</b>	<b>G</b>	<b>3</b>
Critical examination of trends and issues in research and theory on adolescent, post-secondary, and community literacies.			
<b>8306</b>	<b>African American Language and Literacies</b>	<b>G</b>	<b>3</b>
Examination of research and theory in African American language and literacies studies. Prereq: Credit for at least one Doctoral-level course. Not open to students with credit for 906.			
<b>8307</b>	<b>History of Children's and Young Adult Literature</b>	<b>G</b>	<b>3</b>
A seminar focusing on the history of American and English Children's literature from earliest times to the present. Prereq: Not open to students with credit for 907.			
<b>8311</b>	<b>Research in Emergent Literacy</b>	<b>G</b>	<b>3</b>
Current topics and issues concerning the development of literacy in young children, particularly the achievement of emergent literacy and the transition from emergent to early literacy, generally pre K through 1st grade. Prereq: Not open to students with credit for 911.			
<b>8313</b>	<b>Research and Theory in Written Composition</b>	<b>G</b>	<b>3</b>
Considers writing in variety of contexts--primary school, middle school, high school, college, and the larger community--from the perspective of research; broader issues of how attention to culture and context can provide more responsive instruction. Prereq: Not open to students with credit for 913 and 914.			
<b>8334</b>	<b>Research Methods for Literature for Children and Young Adults</b>	<b>G</b>	<b>4</b>
Immerses students in the methodology, practice, and application of conducting academic research in the field of Literature for Children and Young Adults. The class will aid in their professionalization by having students explore an array of peer-reviewed journals, a variety of major national as well as international conferences, and current scholarly trends in the field.			
<b>8363</b>	<b>Sociolinguistics and Language Education</b>	<b>G</b>	<b>3</b>
Surveys foundational theories, issues, & methodologies in sociolinguistics. We examine how these theoretical insights & empirical approaches have been used to study & illuminate topics of concern to language education. Prereq: Not open to students with credit for 863.			
<b>8420</b>	<b>Professional Seminar for Doctoral Students in Teaching and Learning</b>	<b>G</b>	<b>3</b>
In this seminar, students will gain professional knowledge aimed at facilitating success within the doctoral program. Students will become acquainted with both the explicit and tacit expectations of doctoral study and acquire competencies that will support their continued development as scholars. Repeatable to a maximum of 9 or hrs.			
<b>8421</b>	<b>Guided Survey of Research in Reading</b>	<b>G</b>	<b>3</b>
Explores various investigations of reading and literacy. It examines major trends in reading/literacy research and exemplary studies that address major topics, including methodological issues, basic processes, and instructional practices. Prereq: Not open to students with credit for 921. Repeatable to a maximum of 6 or hrs.			
<b>8425</b>	<b>Understanding the Reading Process</b>	<b>G</b>	<b>3</b>
Focuses on the young child as a learner and on the reading process itself. Explores and extends personal models of the reading process and grounds theory building in close observations of young children reading.			

<b>8426</b>	<b>Advanced Study in Reading Difficulties of Young Children</b>	<b>G</b>	<b>3</b>
Current thinking on reading and learning processes relative to young, low progress, "at risk" students, and seminal research and theories which have influenced the reading difficulties field will be related to students who are difficult to teach.			
<b>8427</b>	<b>Learning and Teaching Reading Comprehension</b>	<b>G</b>	<b>3</b>
Designed to provide doctoral students knowledge of the research on reading comprehension.			
<b>8610</b>	<b>Second Language Acquisition</b>	<b>G</b>	<b>3</b>
Provides an overview of theories and research in the field of second language acquisition (SLA). We examine the development of SLA as a field, exploring cognitive, linguistic, sociocultural, and critical research perspectives. Prereq: Not open to students with credit for 703.09.			
<b>8615</b>	<b>Classroom-Oriented Second Language Research</b>	<b>G</b>	<b>3</b>
Aims to help doctoral students to understand the steps involved in designing a qualitative second-language (L2) research project, to critically evaluate published research, and to consider key issues in designing their own L2 study. Prereq: Not open to students with credit for 916.			
<b>8617</b>	<b>Issues in Second Language Learning</b>	<b>G</b>	<b>3</b>
Lecture and discussion course focused on current issues related to second language acquisition research. Prereq: 8610. Not open to students with credit for 917.			
<b>8620</b>	<b>Language Teacher Education</b>	<b>G</b>	<b>3</b>
Deals with foreign and second language teacher education program designs with a focus on goals, objectives, programming, and accreditation models. It is designed for those who are majoring in either TESOL or foreign language education. Prereq: Grad admission as a foreign and 2nd lang ed program major or in an equiv. program related to global ed, multicultural ed, or a foreign language major in one of the OSU lang. dept (e.g., Spanish, German, Chinese).			
<b>8625</b>	<b>First Year Doctoral Seminar in Foreign Language Education</b>	<b>G</b>	<b>3</b>
Focuses on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches related to foreign language education. Prereq: Not open to students with credit for 937.45.			
<b>8630</b>	<b>The Dissertation Experience in Foreign Language Education</b>	<b>G</b>	<b>3</b>
Designed to meet the needs of students who are approaching the dissertation research and writing experiences. Prereq: Not open to students with credit for 938.45.			
<b>8635</b>	<b>Research on Second Language Reading and Writing</b>	<b>G</b>	<b>3</b>
Explores research and research practices related to Second Language reading and writing. Prereq: Not open to students with credit for 960.			
<b>8640</b>	<b>Seminar in Foreign Language Education</b>	<b>G</b>	<b>3</b>
A special topics course that examines theories and research related to a specified topic related to foreign language education. Prereq: Not open to students with credit for 962.			
<b>8701</b>	<b>Advanced Concepts in Elementary School Science Education</b>	<b>G</b>	<b>3</b>
Helps doctoral students develop the knowledge and skills necessary to critically analyze reports of educational research, specifically for elementary science education. Prereq: Not open to students with credit for 920.			
<b>8711</b>	<b>Current Issues and Trends in STEM Education</b>	<b>G</b>	<b>3</b>
An introductory seminar for new STEM education doctoral students and other advanced graduate students seeking increased familiarity with STEM education research communities.			
<b>8721</b>	<b>Advanced Study of Thinking, Learning, and Assessment in Mathematics Education</b>	<b>G</b>	<b>3</b>
Develop a deep, foundational knowledge of various theories and types of research on mathematical thinking and learning. Students will also develop knowledge of ways of assessing mathematical knowledge, thinking, and reasoning. Prereq: Not open to students with credit for 938.26.			
<b>8722</b>	<b>Advanced Study of Thinking, Learning, &amp; Assessment in Science Education</b>	<b>G</b>	<b>3</b>
Focuses on advanced skills and knowledge used to understand how thinking, learning, and assessment occur in science education programs. Prereq: Not open to students with credit for 938.27.			
<b>8731</b>	<b>Teaching and Teacher Education in STEM Education</b>	<b>G</b>	<b>3</b>
Students develop the knowledge and skills necessary to critically analyze reports of educational research, current thinking and perspectives, critical issues associated with science and mathematics teacher education and teacher preparation. Prereq: Not open to students with credit for 999.23.			
<b>8741</b>	<b>History of Curriculum in STEM Education</b>	<b>G</b>	<b>3</b>
Familiarizes students with the changing curriculum in school mathematics. It will examine the history and evolution of K-16 STEM curricula in the United States with particular emphasis on the past century (1890 to 2010). Prereq: Not open to students with credit for 937.26.			

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**8742 History of Curriculum in Science Education G 3**

Focuses on the forces that have shaped the emergence of contemporary curriculum patterns in science education, with particular emphasis given to the trends, issues, and policies that have shaped science curriculum design and development.

Prereq: Not open to students with credit for 937.27.

**8743 History of Curriculum in Technology/Engineering Education G 3**

The history of curriculum development in technology and engineering education from the elementary grades to the graduate level.

Prereq: Not open to students with credit for 937.21.

**8751 Survey and Critical Analysis of Research in STEM Education G 3**

Examines critical issues associated with conducting and analyzing research in STEM education including formulating and evaluating the following; research questions, methodologies, data collection instruments, and analysis techniques.

**8890 Advanced Seminar G 1 - 4**

Advanced graduate seminar focusing on educational scholarship.

Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs or 10 completions.

**8998 Research Apprenticeship in Teaching and Learning G 2 - 8**

The process of researching teaching and learning are explored through working with a faculty member on an established research project.

Prereq: Permission of PhD coordinator required. Repeatable to a maximum of 30 cr hrs or 15 completions. This course is graded S/U.

**8999 Research G 1 - 15**

Research for dissertation purposes only.

Repeatable to a maximum of 40 cr hrs or 12 completions. This course is graded S/U.

### Educational Studies

**2189S First Education Experience Program (FEEP) U 3 - 5**

Provides opportunities for students to explore education as a possible career path via a combination of field and seminar requirements. Students spend time in local, public PreK-12 school-based settings, interacting with various professionals and students.

GE service learning course.

**5189 First Education Experience Program (FEEP) U G 3 - 5**

The purpose of this course is to provide opportunities for students to explore education settings via a combination of field and seminar requirements and to reflect on how those experiences in this course intersect with the chosen career. The students will spend time in local preK-12 school settings, interacting with various professionals and students.

**5193 Individual Studies: Educational Studies U G 1 - 15**

Individual study projects.

Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.

**5194 Group Studies: Educational Studies U G 1 - 15**

Group study projects.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.

**5765 Grant Writing U G 3**

Provides an overview of the grant writing process.

Repeatable to a maximum of 6 cr hrs.

**5798.01 Study Tour: Domestic U G 1 - 5**

Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Repeatable for different titled study tours only.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.

**5798.02 Study Tour: Foreign U G 1 - 5**

Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details.

Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions for different titled study tours only. This course is graded S/U.

**5880.01 Interprofessional Education: Seminar on Interprofessional Care U G 2**

Develop and practice skills necessary for interprofessional collaboration in solving complex human problems. Case based.

Prereq: Jr standing, or above. Repeatable to a maximum of 4 cr hrs. Cross-listed in HthRhSc and Nursing and MedColl 6880.01.

**5880.03 Interprofessional Education: Seminar on Ethical issues Common to the Helping Professions U G 2**

Ethical issues common to the professions (e.g., rapidly advancing technology, death/dying, privacy/confidentiality, professional boundaries). Case based. Limited to students enrolled in Health and Rehabilitation Science, Education, Nursing, and the College of Medicine.

Prereq: Jr standing or above. Repeatable to a maximum of 4 cr hrs. Cross-listed in HthRhSc and Nursing and MedColl 6880.03.

**5880.04S Interprofessional Education: Collaboration in Urban Communities U G 3**

Students, faculty, community residents and professionals offer research-based solutions to community identified challenges. Focus on community asset mapping, best professional and interprofessional practices, and teamwork.

Prereq: Jr standing or above. Repeatable to a maximum of 6 cr hrs. Cross-listed in HthRhSc and Nursing.

**5880.07 Interprofessional Approaches to Child Abuse and Neglect U G 2**

Interdisciplinary approach to exploring issues in the identification, treatment, and prevention of child abuse and neglect.

Prereq: Jr standing, or above. Repeatable to a maximum of 4 cr hrs. Cross-listed in MedColl 6880.07.

**5892 Colloquia, Workshops and Special Topics: Educational Studies U G 1 - 8**

Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.

Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

**6891 Proseminar in Educational Studies G 3**

An introduction to the areas of research in the Department of Educational Studies This is a core requirement for doctoral students.

Prereq: Admission to a doctoral program in Educational Studies.

**6892 Educational Policy and Inequality in Social and Cultural Context: Integrating Research Traditions G 3**

An introductory seminar course addressing issues of race, ethnicity, language, class, gender, sexuality, and disability as they influence and are influenced by educational policy processes. This is a core requirement for doctoral students.

Prereq: Admission to a doctoral program in Educational Studies.

**7189 Planned Field Experience: Foreign G 1 - 15**

Planned professional teaching experience under supervision in a public school or other educational agency.

Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.

**7406 Course Design for Higher Education G 3**

Students will gain an understanding of how to design a course based on goals and objectives. They will begin the work of planning, within a community of peers, and will leave with the basic structure for a course and the beginnings for materials. Participants will share experiences and ideas, design and implement instructional activities, and develop strategies for assessing teaching and learning.

**7717 Interdisciplinary Perspectives on Developmental Disabilities G 3**

Introduction to the psychosocial, medical, and educational implications of developmental disabilities.

Prereq: Permission of instructor. Not open to students with credit for EduPAES 717.01 or 717.03. Cross-listed in HthRhSc, SocWork, Psych, Nursing, and SphHrng.

**7718 Interdisciplinary Perspectives on Autism Spectrum Disorders G 3**

Teaches the analytical skills necessary to comprehend and formulate an interdisciplinary framework relating to major scientific and theoretical perspectives in autism spectrum disorders.

Prereq: Permission of instructor. Not open to students with credit for EduPAES 717.01 and 717.02. Cross-listed in HthRhSc, SocWork, Nursing, Psych, and SphHrng.

**7897 Special Topics: Educational Studies G 1 - 5**

Special topics for professional educators and graduate students in selected areas; designed to provide the opportunity to update professional skills and review current research developments.

Prereq: Grad standing, or registration in one of the professional schools. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.

**7999 Thesis Research: Educational Studies G 1 - 18**

Research related to the Master's thesis.

Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.

**8081 Introductory Seminar: Applied Developmental Science in Education G 3**

An introductory professional seminar for doctoral students seeking the Interdisciplinary PhD Specialization in Applied Developmental Science in Education (ADS-E). Cross-listed in EduTL and HDFS.

**8082 Capstone Seminar: Applied Developmental Science in Education G 3**

A capstone professional seminar for doctoral students enrolled in the Interdisciplinary PhD Specialization in Applied Developmental Science in Education (ADS-E).

Prereq: 8081 or EduTL 8081. Cross-listed in EduTL and HDFS.

<b>8189</b>	<b>Planned Field Experience: Educational Studies</b>	<b>G</b>	<b>1 - 15</b>
Planned professional teaching experience under supervision in a public school or other educational agency. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.			
<b>8191</b>	<b>Research Apprenticeship: Educational Studies</b>	<b>G</b>	<b>1 - 12</b>
Internship experiences in research, development, or evaluation settings. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>8193</b>	<b>Advanced Individual Studies: Educational Studies</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Educational Studies</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8895</b>	<b>Seminars: Educational Studies</b>	<b>G</b>	<b>2 - 5</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions.			

### Educational Studies: Counselor Education

<b>2189.01S</b>	<b>First Education Experience Program-International</b>	<b>U</b>	<b>3</b>
The main purpose of this course is to provide opportunities for students to explore education as a possible career path via a combination of field and seminar requirements. This is also an opportunity to engage in community service. Students spend time in preK-12 school-based settings, interacting with various professionals (e.g., teachers, school psychologists, school counselors) and students. Repeatable to a maximum of 12 cr hrs.			
<b>2271</b>	<b>Seminar: Self-Career Development</b>	<b>U</b>	<b>2</b>
Designed to provide opportunities for self-exploration and skill development; exploration of and clarification of vocational and educational interests. Prereq: Not open to students with credit for EduPAES 270.01. This course is progress graded (S/U).			
<b>2272</b>	<b>Seminar: Personal Growth to Increase Career Competencies</b>	<b>U</b>	<b>2</b>
Designed to provide opportunities to assist in self-exploration of and clarification for more effective development beyond the level of average performance. Prereq: Not open to students with credit for EduPAES 270.02. This course is progress graded (S/U).			
<b>2273</b>	<b>Seminar: Study Skills Related to Career Goals</b>	<b>U</b>	<b>2</b>
Designed to assist underachieving students with their efforts to ascertain and resolve the causes of low academic productivity; attitudinal and behavioral skills emphasized. Prereq: Not open to students with credit for EduPAES 270.03. This course is progress graded (S/U).			
<b>4270</b>	<b>Love, Sex, and Relationships</b>	<b>U</b>	<b>3</b>
Introduction to understanding healthy relationships including a focus on developing relationship skills such as communication, assertiveness, and conflict resolution, exploration of relationship styles, sex, sexuality, and a focus on developing lifelong healthy relationship skills.			
<b>5193</b>	<b>Individual Studies: Counselor Education</b>	<b>U G</b>	<b>1 - 15</b>
In conjunction with the instructor, students will engage in individual study projects. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.			
<b>5271</b>	<b>Wellness: Achieving a Healthy Lifestyle</b>	<b>U G</b>	<b>3</b>
Study and application of a holistic approach to understanding and implementing individual wellness for healthy lifestyles.			
<b>5272</b>	<b>Wellness: Intervention</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to train students to understand the theories and practical applications involved in assisting individuals and targeted groups with the lifestyle modifications and habit changes that contribute to overall well being. Students must have completed ESCE 5271 before enrolling in this course. Prereq: 5271.			
<b>6189.01</b>	<b>Practicum In School Counseling</b>	<b>G</b>	<b>4</b>
Field practicum in school counseling. Prereq: 6731, 6732, and 6733; and admission into Counselor Education program.			
<b>6189.02</b>	<b>Practicum in Clinical Health Counseling</b>	<b>G</b>	<b>4</b>
Practicum in clinical mental health counseling. Prereq: 6731, 6732, and 6733; and admission into Counselor Education program.			

<b>6731</b>	<b>Foundations of Professional Counseling</b>	<b>G</b>	<b>3</b>
Foundations of professional counseling, including history and philosophy, professional associations, licensure, current settings, advocacy, collaboration, role in national emergencies, and current issues of the profession. Prereq: Admission to Counselor Education program.			
<b>6732</b>	<b>Theories of Professional Counseling</b>	<b>G</b>	<b>3</b>
Theories of change, personality development, and methods to foster client growth. Prereq: Admission to Counselor Education program. Concur: 6733.			
<b>6733</b>	<b>Techniques of Individual Counseling</b>	<b>G</b>	<b>1½</b>
Techniques to facilitate the individual counseling process for client growth. Prereq: Admission to Counselor Education program. Concur: 6732.			
<b>6734</b>	<b>Assessment in Counseling</b>	<b>G</b>	<b>3</b>
Studies that provide an understanding of individual and group approaches to counseling assessment and evaluation. Prereq: Admission to Counselor Education program.			
<b>6735</b>	<b>Counseling Across the Lifespan</b>	<b>G</b>	<b>2</b>
Developmental issues across the lifespan, including identity development, diversity, values programming, poverty, and events that alter the developmental trajectory such as trauma. Prereq: Admission to Counselor Education program.			
<b>6736</b>	<b>Lifespan Career Development and Counseling</b>	<b>G</b>	<b>2</b>
Study of the career development process across the lifespan and concurrent counseling implications. Prereq: Admission to Counselor Education program.			
<b>6737</b>	<b>Group Counseling</b>	<b>G</b>	<b>3</b>
Study of group counseling theories and developmental processes for therapeutic and psychoeducational groups. Prereq: 6731 and 6732, and admission to Counselor Education program. Concur: 6738.			
<b>6738</b>	<b>Techniques of Group Counseling</b>	<b>G</b>	<b>1½</b>
Experiential group participation and leadership. Prereq: 6731 and 6733, and admission to Counselor Education program.			
<b>6739</b>	<b>Legal and Ethical Issues in Counseling</b>	<b>G</b>	<b>1½</b>
Legal and ethical issues in professional counseling. Prereq: 6731, and admission to Counselor Education program.			
<b>6740</b>	<b>Techniques for Counseling Children and Adolescents</b>	<b>G</b>	<b>1½</b>
Techniques to facilitate the counseling process with children and adolescents. Prereq: 6731, and admission to Counselor Education program.			
<b>6831</b>	<b>Professional School Counseling</b>	<b>G</b>	<b>3</b>
Foundation concepts for providing professional school counseling through comprehensive school counseling programs. Prereq: 6731, and admission to Counselor Education program.			
<b>6931</b>	<b>Diagnosis of Mental and Emotional Disorders</b>	<b>G</b>	<b>3</b>
Study and application of the principles and practices of diagnosis according to the DSM. Prereq: 6731, and admission to Counselor Education program.			
<b>7191.01</b>	<b>Internship in School Counseling</b>	<b>G</b>	<b>5</b>
Field internship in school counseling. Prereq: 6189.01 or 6189.02, and admission to Counselor Education program. Repeatable to a maximum of 15 cr hrs.			
<b>7191.02</b>	<b>Internship in Clinical Mental Health Counseling</b>	<b>G</b>	<b>5</b>
Internship in clinical mental health counseling. Prereq: 6189.01 or 6189.02, and admission to Counselor Education program. Repeatable to a maximum of 15 cr hrs.			
<b>7741</b>	<b>Multicultural Issues In Counseling</b>	<b>G</b>	<b>4</b>
Study and application of concepts for understanding diversity of clients and self, and implications for communication and counseling practice. Prereq: 6731, and admission to Counselor Education program.			
<b>7742</b>	<b>Addictions Counseling</b>	<b>G</b>	<b>2</b>
Study and application of the principles and practices of diagnosis, treatment, and referral of addiction disorders. Prereq: 6731, and admission to Counselor Education program.			
<b>7743</b>	<b>Family and Couples Counseling</b>	<b>G</b>	<b>2</b>
Study and application of the principles and practices of marriage, family, and couples counseling. Prereq: 6731, and admission to Counselor Education program.			
<b>7745</b>	<b>Theories of Consultation</b>	<b>G</b>	<b>1½</b>
Study and application of concepts and practices of consultation in counseling. Prereq: 6731, and admission to Counselor Education program.			
<b>7832</b>	<b>Current Issues in Professional School Counseling</b>	<b>G</b>	<b>3</b>
Study of the current issues in school counseling including student issues, schools issues, and community issues. Prereq: 6831, and admission to Counselor Education program.			

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<b>7932</b>	<b>Psychopathology, Trauma, and Crisis Counseling</b>	<b>G</b>	<b>3</b>
Study and application of treatment of major mental disorders, trauma, and crisis counseling. Prereq: 6731 and 6931, and admission to Counselor Education program.			
<b>7933</b>	<b>Wellness and Prevention Counseling</b>	<b>G</b>	<b>3</b>
Study and application of principles and practices of wellness and prevention in counseling. Prereq: 6731, and admission to Counselor Education program.			
<b>7934</b>	<b>Theories of Counseling Supervision</b>	<b>G</b>	<b>1½</b>
Study and application of concepts and practices of supervision for counselors and therapists. Prereq: 6731, and admission to Counselor Education program.			
<b>7935</b>	<b>Advanced Assessment: Personality Testing</b>	<b>G</b>	<b>4</b>
Study and application of principles and practices of comprehensive psychological evaluations. Prereq: 6731 and 6734, and admission to Counselor Education program.			
<b>8100</b>	<b>Leadership in Counselor Education</b>	<b>G</b>	<b>3</b>
Study and application of the principles and practices of leadership in professional counseling and counselor education. Prereq: Admission to Doct program in Counselor Education.			
<b>8191.01</b>	<b>Doctoral Practicum in Counselor Education</b>	<b>G</b>	<b>2 - 8</b>
Practicum in doctoral studies in counselor education. Prereq: Admission to Doc program in Counselor Education, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>8191.02</b>	<b>Doctoral Internship: Counselor Education - Supervision</b>	<b>G</b>	<b>2 - 10</b>
Field experience in doctoral studies in counselor education: Supervision. Prereq: Admission to Doc program in Counselor Education, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>8191.03</b>	<b>Doctoral Internship: Counselor Education - Teaching</b>	<b>G</b>	<b>2 - 10</b>
Field experience in doctoral studies in counselor education: Teaching. Prereq: Admission to Doct program in Counselor Education program, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>8191.04</b>	<b>Doctoral Internship: Counselor Education - Counseling</b>	<b>G</b>	<b>0 - 10</b>
Field experience in doctoral studies in counselor education: Counseling. Prereq: Admission to Doct program in Counselor Education program, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>8191.05</b>	<b>Doctoral Internship: Counselor Education: Research</b>	<b>G</b>	<b>2 - 10</b>
Field Experience in Counselor Education: Research. Prereq: Admission to Doctoral program in Counselor Education, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Independent Studies: Counselor Education</b>	<b>G</b>	<b>1 - 12</b>
Advanced independent study in Counselor Education. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8200</b>	<b>Critical Pedagogy Issues In Counselor Education</b>	<b>G</b>	<b>3</b>
Study and application of the principles and practices of teaching counseling in graduate counselor education programs. Prereq: Admission to Doct program in Counselor Education.			
<b>8300</b>	<b>Developing a Research Identity in Counselor Education</b>	<b>G</b>	<b>3</b>
Study and application of principles and practices of developing a research agenda and professional scholarship in counselor education. Prereq: Admission to Doct program in Counselor Education.			
<b>8400</b>	<b>Critical Research Issues in Counselor Education</b>	<b>G</b>	<b>3</b>
Study and application of principles and practices of research and professional scholarship in counselor education. Prereq: Admission to Doct program in Counselor Education.			
<b>8895</b>	<b>Seminars: Counselor Ed</b>	<b>G</b>	<b>1 - 4</b>
Study, discussion, and application of concepts related to doctoral study in counselor education. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation/Thesis Research: Counselor Education</b>	<b>G</b>	<b>1 - 9</b>
Dissertation research - research conducted for dissertation, under supervision of faculty advisor. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			

### Educational Studies: Cultural Foundations of Educ

<b>5194</b>	<b>Group Studies: Cultural Foundations of Education</b>	<b>U G</b>	<b>1 - 15</b>
Group study projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			

<b>7214</b>	<b>An Interpretive History of African American Education:1700 to 1950</b>	<b>G</b>	<b>3</b>
Examination of the education of African Americans from the perspective of African American scholars from 1700 to 1950. Prereq: Not open to students with credit for EduPL 863.			
<b>8193</b>	<b>Advanced Individual Studies: Cultural Foundations of Education</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Cultural Foundations of Education</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation or Thesis Research: Cultural Foundations of Education</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

### Educational Studies: Educational Administration

<b>5193</b>	<b>Individual Studies: Educational Administration</b>	<b>U G</b>	<b>1 - 15</b>
Individual study projects. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies: Educational Administration</b>	<b>U G</b>	<b>1 - 15</b>
Group study projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>6189.01</b>	<b>Field Experience: PK-6 principal licensure</b>	<b>G</b>	<b>½ - 3</b>
The planned field experience course is the capstone experience for students in PK-6 principal licensure. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6189.02</b>	<b>Field Experience: 4-9 principal licensure</b>	<b>G</b>	<b>½ - 3</b>
The planned field experience course is the capstone experience for students in 4-9 principal licensure. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6189.03</b>	<b>Field Experience: 5-12 principal licensure</b>	<b>G</b>	<b>½ - 3</b>
The planned field experience course is the capstone experience for students in 5-12 principal licensure. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6350</b>	<b>Introduction to Educational Administration</b>	<b>G</b>	<b>3</b>
Introduction to the organizational setting of the school, the nature of administration, and personal decision making about careers in educational administration. This is a core course in administrator certification. Prereq: Not open to students with credit for EduPL 846 or 886.			
<b>6356</b>	<b>Legal Aspects of School Administration</b>	<b>G</b>	<b>3</b>
A study of statutory and case law, executive opinions, legal principles, and provisions relevant to educational administration, particularly in areas of student rights, personnel, finance, curriculum, contracts, property, liability, and organization. Prereq: Not open to students with credit for EduPL 952.			
<b>6360</b>	<b>School Community Relations and Politics</b>	<b>G</b>	<b>3</b>
Principles and practice in developing and maintaining appropriate school community relationships; communication processes; decision-making patterns; politics and micro-politics of schools.			
<b>6362</b>	<b>Strategic Human Capital Management for P-12 Administration</b>	<b>G</b>	<b>3</b>
Provides a foundation of human resource function in theory and practice; explores laws, policies, and practices related to the effective management of human capital management in P-12 education. Prereq: 6350 or EduPL 6350. Not open to students with credit for EduPL 955 or 949.			
<b>6366</b>	<b>School Finance and Business Administration</b>	<b>G</b>	<b>3</b>
A study of K-12 education finance with special emphasis on public policy and business administration. Criteria for evaluating taxation and models for making business decisions are included.			
<b>6372</b>	<b>Educational Technology Leadership and Administration</b>	<b>G</b>	<b>3</b>
Overview of the uses of technology in schools. Prepares leaders with knowledge and skills to help shape, evaluate, and supervise technology initiatives in educational organizations. Prereq: Not open to students with credit for EduPL 707.			
<b>6374</b>	<b>Database Decision Making for School Leaders</b>	<b>G</b>	<b>3</b>
Designed to assist building leaders in their understanding and ability to systematically use a variety of student and school related data to guide educational decision-making. This course will also emphasize ways in which school leaders can collaboratively work with stakeholders to use data to inform the development of a school vision. Prereq: 6350.			

## Educational Studies: Educational Administration 157

<b>7189</b>	<b>Planned School District Field Experience</b>	<b>G</b>	<b>2 - 5</b>
The candidate synthesizes and applies knowledge and skills through substantial, sustained, standards-based field work, planned and guided cooperatively by the licensure adviser and school district. Repeatable to a maximum of 8 cr hrs or 2 completions. This course is progress graded (S/U).			
<b>7350</b>	<b>School Improvement for Educational Leaders</b>	<b>G</b>	<b>3</b>
Applies theory from classroom management, learning, motivation, and teaching to the practice of PreK-12 education. Repeatable to a maximum of 6 cr hrs.			
<b>7356</b>	<b>Instructional Leadership and Supervision</b>	<b>G</b>	<b>3</b>
Instructional leadership requires the development of an organization and its members in support of its teaching and learning mission. Prereq: Not open to students with credit for EduPL 726 or 891.01.			
<b>7359</b>	<b>Leadership, Inquiry, and Ethics</b>	<b>G</b>	<b>3</b>
Authentic learning leading to application to practice in educational organizations. This is a core course in administrator certification. Learning promotes three primary principles: leadership, inquiry, and ethics.			
<b>7362</b>	<b>Board Politics and Public Relations</b>	<b>G</b>	<b>3</b>
Explores board of education and superintendent roles and responsibilities in the governance of the school district and the dynamic nature of board-superintendent relationships. Prereq: Not open to students with credit for EduPL 962.			
<b>7364</b>	<b>Finance of School Districts</b>	<b>G</b>	<b>3</b>
Explores the collective dimensions of leadership and the larger context of school finance that emphasizes economics and politics. Prereq: Not open to students with credit for EduPL 724.			
<b>7366</b>	<b>Administrative Responsibilities, Policy, and Perspectives</b>	<b>G</b>	<b>3</b>
Role of the superintendent in standards-based education reform and the improvement of the instructional program to serve diverse student needs effectively and equitably. Prereq: Permission of instructor. Not open to students with credit for EduPL 725 or 843.			
<b>7368</b>	<b>Educational Facility Planning</b>	<b>G</b>	<b>3</b>
Introduces knowledge, dispositions, and performances necessary for planning, designing, and building schools; explores notions of architectural quality, aesthetic experience, and school as public place. Prereq: Not open to students with credit for EduPL 958.			
<b>7374</b>	<b>Theory and Foundations of Supervision</b>	<b>G</b>	<b>3</b>
Addresses theory, concepts, and research related to supervision and is intended to develop comprehension of the major points-of-view, elements, and constructs that influence the practice of supervision. Prereq: Not open to students with credit for EduPL 866.			
<b>7881</b>	<b>Instructional Leadership</b>	<b>G</b>	<b>1 - 3</b>
This course will provide opportunities for students analyze and evaluate the meaning, practice and impact of instructional leadership in schools. Course readings will focus on the mechanisms through which school principals lead teacher teams to improve instruction by developing internally coherent systems of collaboration and common understandings of effective teaching practice. Prereq: Enrollment in BRIGHT MBA. Repeatable to a maximum of 3 cr hrs. This course is progress graded.			
<b>7882</b>	<b>Theories of Instruction</b>	<b>G</b>	<b>1</b>
This course will explore three different conceptual frameworks for learning developed over the course of the twentieth century, including socio-cognitive, soci-historical and cultural-historical, and instruction using technologies. Prereq: Enrollment in BRIGHT MBA program.			
<b>7883.01</b>	<b>Culture &amp; Efficacy In Education</b>	<b>G</b>	<b>1½</b>
The course will provide participants with the opportunity to develop a multicultural awareness and develop cultural competency as they explore the impact of an increasingly diverse society in the United States. Particular emphasis will be placed on gaining self-awareness around issues of cultural diversity as well as expanding one's knowledge base in the area of diversity. Prereq: Enrollment in BRIGHT MBA. Concur: 7883.02.			
<b>7883.02</b>	<b>Culture &amp; Efficacy In Education</b>	<b>G</b>	<b>1½</b>
The course will provide participants with the opportunity to develop a multicultural awareness and develop cultural competency as they explore the impact of an increasingly diverse society in the United States. Particular emphasis will be placed on gaining self-awareness around issues of cultural diversity as well as expanding one's knowledge base in the area of diversity. Prereq: 7883.01, and enrollment in BRIGHT MBA.			
<b>7884</b>	<b>Curriculum Design</b>	<b>G</b>	<b>1½</b>
This course is a compilation of curriculum history, issues, and development, primarily to facilitate an understanding of what curriculum means, looks like, and how it can be created, implemented, critiqued, assessed and modified for use in classrooms. Prereq: Enrollment in BRIGHT MBA program.			
<b>7885</b>	<b>School Law</b>	<b>G</b>	<b>1½</b>
The course is designed to help school leaders explore the interplay of law, policy, and educational leadership and practice. Prereq: Enrollment in BRIGHT MBA.			

<b>7886</b>	<b>Data Driven Improvement for School Leaders</b>	<b>G</b>	<b>1 - 2</b>
This course is designed to assist school leaders in their understanding and ability to systematically use a variety of school data to impact teaching, learning, and decision-making for the purpose of increasing student success. The course also focuses on how school leaders can create conditions that foster effective data use. Prereq: Enrollment in BRIGHT MBA program. Repeatable to a maximum of 2 cr hrs. This course is progress graded.			
<b>7887</b>	<b>Literacy</b>	<b>G</b>	<b>1</b>
This course presents an overview of reading achievement of students in American schools and instructional strategies for teaching reading skills in low resource schools with high poverty populations. Prereq: Enrollment in BRIGHT MBA program.			
<b>7888</b>	<b>Academic Motivation for School Administrators</b>	<b>G</b>	<b>1</b>
This course is designed to introduce school administrators to current theory and research on academic motivation. Prereq: Enrollment in BRIGHT MBA program.			
<b>7897</b>	<b>Special Topics: Educational Administration</b>	<b>G</b>	<b>1 - 5</b>
Special topics for professional educators and graduate students in selected areas; designed to provide the opportunity to update professional skills and review current research developments. Prereq: Grad standing, or registration in one of the professional schools. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research: Educational Administration</b>	<b>G</b>	<b>1 - 18</b>
Research for master's thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Individual Studies: Educational Administration</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Educational Administration</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8200</b>	<b>Place, Space and Leadership</b>	<b>G</b>	<b>3</b>
The place and space are fundamental dimensions of the human experience. In this course, we will examine the ways in which place and space are produced and inhabited by people in various contexts and we will consider how place and space help shape experiences of belonging, citizenship, and community in everyday life. Prereq: Admission to the EdD in Educational Administration program, or permission of instructor.			
<b>8201</b>	<b>Community-Based Research and Evaluation in Educational Administration</b>	<b>G</b>	<b>3</b>
This course focuses on identifying, understanding and addressing problems of practice at the community level. Through class discussions and assignments, students will become familiar with the paradigm shift, developing community inquiry through problem mapping and evaluation and community based participatory research (CBPR). Cross-listed in ESQual.			
<b>8202</b>	<b>Positive Psychology and Educational Administration</b>	<b>G</b>	<b>3</b>
This course helps present and future educational leadership understand the pressure on educational systems from the economic, technological, social, cultural, and political conditions of contemporary society, while exploring their implications and ways to enhance positive and effective leadership.			
<b>8310</b>	<b>Educational Change</b>	<b>G</b>	<b>3</b>
The study and practice of strategies for implementing change in schools, including the development of shared vision, missions, goals, and interventions.			
<b>8317</b>	<b>Legal Aspects of Special Education Administration</b>	<b>G</b>	<b>3</b>
Legislative, executive, and judicial policy and action pertaining to the rights of students with special needs, with a focus on the responsibilities of school administrators and state officials. Prereq: Not open to students with credit for EduPL 963.			
<b>8318</b>	<b>Seminar on Human Resources in Education</b>	<b>G</b>	<b>3</b>
Expand knowledge and skills about human resource function in theory and practice; analyze and critique laws, policies, and practices related to the effective management of, and professional development for, human capital management in education.			
<b>8354</b>	<b>Legal Research In Educational Administration</b>	<b>G</b>	<b>3</b>
Inquiry into the field of Educational Administration using Legal Research Methodology. Part of the doctoral core in Educational Administration. Prereq: Not open to students with credit for EduPL 971.			

## 158 Educational Studies: Educational Administration

<b>8356</b>	<b>Economic Viewpoints in Education</b>	<b>G</b>	<b>3</b>
A study of K-12 education with emphasis on economic viewpoints about schooling. Human capital theory asserts that education is an investment. Signaling theory asserts that formal education is credentialing. Prereq: Admission to Educational Administration Doctoral Cohort. Not open to students with credit for EduPL 916.			
<b>8359</b>	<b>Organizational Behavior: Theory and Research</b>	<b>G</b>	<b>3</b>
Analysis of relevant research and organizational theory for understanding schools. This is the first course in the Ph.D. doctoral core in educational administration. Prereq: 6350 or EduPL 6350 (846). Not open to students with credit for EduPL 959.			
<b>8361</b>	<b>Social and Political Contexts of Education</b>	<b>G</b>	<b>3</b>
Examines societal conditions - economic, technological, social, cultural, and political - that exert intense pressures on the educational system and pose great challenges to educational leaders.			
<b>8421</b>	<b>Leading Professional Learning for Educators</b>	<b>G</b>	<b>3</b>
Study of research on teacher education and teacher education programs at the collegiate and university levels. Repeatable to a maximum of 6 cr hrs.			
<b>8700</b>	<b>Inquiry in Educational Administration</b>	<b>G</b>	<b>3</b>
This course will examine conducting research on problems of practice in school environments with a focus on critical leadership.			
<b>8895</b>	<b>Seminars: Educational Administration</b>	<b>G</b>	<b>2 - 5</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions.			
<b>8997</b>	<b>Edd Final Project Writing</b>	<b>G</b>	<b>1 - 3</b>
Writing the final project for the Edd. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation or Thesis Research: Educational Administration</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

### Educational Studies: Educational Policy

<b>3312</b>	<b>Conflict, Power, and Voice in Public Education</b>	<b>U</b>	<b>3</b>
This course introduces students to the contested interests, ideologies, and goals that sit at the center of the educational political arena. The course explores multiple and often competing purposes of education, politics of education governance, and issues of representation, agency, and change.			
<b>5217</b>	<b>Comparative Perspective on Education, Globalization, and National Development</b>	<b>U G</b>	<b>3</b>
Examines comparative perspectives on the role of educational processes in national development and globalization, including "out of school" contexts that impact where and what children learn.			
<b>6000</b>	<b>Introduction to Educational Policy</b>	<b>G</b>	<b>3</b>
Introduction to the educational policy process and common dilemmas in educational policy.			
<b>7100</b>	<b>Education Policy Writing</b>	<b>G</b>	<b>3</b>
Develop policy writing skills, including the translation of educational research to policy briefs, the development of policy scholarship, and understanding the nuances of publication in various policy venues.			
<b>7224</b>	<b>Educational Policy Analysis in Contemporary Culture</b>	<b>G</b>	<b>3</b>
Examines key theories and research perspectives on educational policy. Explores major policy processes and agendas unfolding at the time of the course. Introduction to methods for studying educational policy. Prereq: Not open to students with credit for EduPL 824.			
<b>7225</b>	<b>Inquiry into Education Policy Research</b>	<b>G</b>	<b>3</b>
Introduction to guiding principles for policy inquiry and analyses. The focus is on learning analytical vocabularies and approaches distinctive to policy inquiry. Students learn to read and think critically and creatively about public policy problems and solutions through the lens of research. Cross-listed in ESQual.			
<b>7897</b>	<b>Special Topics: Educational Policy</b>	<b>G</b>	<b>1 - 5</b>
Special topics for professional educators and graduate students in selected areas; designed to provide the opportunity to update professional skills and review current research developments. Prereq: Grad standing or registration in one of the professional schools. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research: Educational Policy</b>	<b>G</b>	<b>1 - 3</b>
Research for master's thesis purposes. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			

<b>8193</b>	<b>Advanced Individual Studies: Educational Policy</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual study. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8209</b>	<b>Cultural Processes in Education</b>	<b>G</b>	<b>3</b>
Examines the role of cultural processes in educational practices at school, after school, in the home, and on the job. Explores how culture, ethnicity, and power operate in formal and informal educational settings. Prereq: Not open to students with credit for EduPL 909.			
<b>8312</b>	<b>Governance and Control in American Education</b>	<b>G</b>	<b>3</b>
A critical examination of national, state, and local politics and governance in American education.			
<b>8352</b>	<b>Educational Policy in Democratic Society</b>	<b>G</b>	<b>3</b>
Focuses on conceptions of democracy, the democratic aims of public education, and the processes of developing, implementing and analyzing policies that further those aims. Prereq: Not open to students with credit for EduPL 922.			
<b>8895</b>	<b>Seminars: Educational Policy</b>	<b>G</b>	<b>2 - 5</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions.			
<b>8999</b>	<b>Dissertation or Thesis Research: Educational Policy</b>	<b>G</b>	<b>1 - 3</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			

### Educational Studies: Educational Psychology

<b>1159</b>	<b>Online Learning Strategies and Skills</b>	<b>U</b>	<b>2</b>
Explores how to use the web for a successful college experience. Covers navigating online resources, communicating academic content, and enhancing learning via the web. This course has been peer reviewed and is officially recognized by Quality Matters as meeting the standards of a quality online course. For more information, visit <a href="http://www.qmprogram.org">www.qmprogram.org</a> . Prereq: Not open to students with credit for EduPL 159.			
<b>1259</b>	<b>Learning and Motivation Strategies for College Success</b>	<b>U</b>	<b>3</b>
Teaches learning and motivation strategies to help students manage time, improve grades, and achieve college success. Students will develop practical skills for personal and academic effectiveness, while also understanding the related research. Topics include boosting motivation, overcoming procrastination, enhancing organization and concentration, and applying effective study strategies.			
<b>1359</b>	<b>Critical Thinking and Collaboration in Online Learning</b>	<b>U</b>	<b>3</b>
Teaches skills for effective collaboration, research, communication, and critical thinking in college and beyond. Students will develop as modern learners who are able to self-regulate while also functioning effectively as team members. Topics covered include online learning tools, search strategies, organization, use of evidence in argumentation, presentations, and self-assessment.			
<b>2059</b>	<b>Becoming a Self-Regulated Learner</b>	<b>U</b>	<b>2</b>
This course will build strategies and motivation to overcome recent academic challenges and prepare for success in the future. Main topics we will cover include self-regulation, active learning, studying, using resources, planning, goal setting, and time management. Our entire course is geared toward helping students become self-regulated learners.			
<b>2060</b>	<b>Academic Success Strategies for International Students</b>	<b>U</b>	<b>2</b>
Supports the academic transition for international students by teaching study habits and strategies for success in the U.S. classroom. Covers expressing original ideas, understanding instructor and course expectations, engaging in class and with classmates, using support resources on campus, managing time, incorporating active learning into study methods, and thinking critically.			
<b>2309</b>	<b>Psychological Perspectives on Education</b>	<b>U</b>	<b>3</b>
This course deals with the major theories of human development, motivation and learning. Planning of instruction, teaching strategies, assessment and classroom management are examined. Authentic pedagogical practices are used to gain an understanding of the teaching and learning process. Prereq: Not open to students with credit for EduPL 309.			
<b>5193</b>	<b>Individual Studies: Educational Psychology</b>	<b>U G</b>	<b>0 - 15</b>
Individual study projects. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies: Educational Psychology</b>	<b>U G</b>	<b>1 - 15</b>
Group study projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>5401</b>	<b>Adolescent Learning and Development in School Contexts</b>	<b>U G</b>	<b>3</b>
Provides students with an introduction to the field of adolescent development and psychology and applications to education. Teacher education licensure course.			



## Educational Studies: Educational Psychology 159

<b>5892</b>	<b>Workshops: Educational Psychology</b>	<b>U G</b>	<b>1 - 8</b>
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>7401</b>	<b>Controversies, Myths, and Dilemmas in Education</b>	<b>G</b>	<b>3</b>
This course examines research on classroom learning and teaching and educational policy, and considers the implications of this research for teaching practice. Course will examine the research evidence behind school- and classroom-level practices, particularly focusing on issues on which opinion is sometimes sharply divided. Prereq: Not open to students with credit for EduPL 803.			
<b>7402</b>	<b>Educational Psychology: Cognition, Learning, and Instruction</b>	<b>G</b>	<b>3</b>
Examination of theory and research about cognitive perspectives on classroom learning and instruction, particularly research on the teaching and learning of school subjects. Prereq: Not open to students with credit for EduPL 880.			
<b>7403</b>	<b>Motivation in Learning and Teaching</b>	<b>G</b>	<b>3</b>
Examines research and theory about motivation to learn in academic settings, including studies of goal theory, social cognitive approaches, and teaching practices. Prereq: Not open to students with credit for EduPL 801.			
<b>7404</b>	<b>College Teaching</b>	<b>G</b>	<b>3</b>
Designed as initial preparation for instruction at the college level; focuses on the generic skills, strategies, and issues common to university teaching. Open to grad students committed to teaching in any area or discipline at the college level.			
<b>7405</b>	<b>Cooperative Learning: Research and Practice</b>	<b>G</b>	<b>3</b>
Examines research, theory, and practice related to cooperative and collaborative learning, including teacher's role, strategies and structures, and assessment of outcomes. Prereq: Not open to students with credit for EduPL 797.			
<b>7406</b>	<b>Social Basis of Behavior in Education</b>	<b>G</b>	<b>3</b>
Focuses on the role of behavior in schools as social contexts, social perception, social influence, and social relations from a psychological perspective. The emphasis in this course is on understanding and mastery of conceptual, theoretical, and practical issues in social behavior in educational settings.			
<b>7434</b>	<b>Professional Development Around Teaching in Higher Education</b>	<b>G</b>	<b>3</b>
Study aspects of teaching and teaching support at the university level, and examine models for university teaching preparation and support programs. Prereq: Permission of instructor.			
<b>7999</b>	<b>Thesis Research: Educational Psychology</b>	<b>G</b>	<b>1 - 18</b>
Research for master's thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Individual Studies: Educational Psychology</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Educational Psychology</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8402</b>	<b>Classroom Research on Student Motivation</b>	<b>G</b>	<b>3</b>
In depth study of theories and research that address the development and support of students' motivation to achieve in classroom settings. Prereq: Not open to students with credit for EduPL 944.			
<b>8403</b>	<b>Advanced Seminar in Educational Psychology</b>	<b>G</b>	<b>3</b>
Advanced seminar in educational psychology for doctoral students. Current trends in theory and research will be critically examined.			
<b>8404</b>	<b>Academic Writing in Education: Reviewing the Literature</b>	<b>G</b>	<b>3</b>
The class will focus primarily on systematic work on students' individual literature reviews. Topics covered will include the writing process in general, including developing personal writing habits; strategies for locating and evaluating existing research literature; structuring literature reviews for different purposes and building a logical rationale; and APA format and style. This course is graded S/U.			
<b>8405</b>	<b>Classroom Learning and Instruction</b>	<b>G</b>	<b>3</b>
This advanced seminar is designed to guide students through contemporary issues in classroom learning and instruction. Students will critically review classroom-based research on how students learn and how to help students learn in various subject areas and with a variety of learners, including K-16 students and adult learners.			

<b>8406</b>	<b>Self-regulated Learning</b>	<b>G</b>	<b>3</b>
This class will critically examine major constructs and relations proposed by different models. We will analyze and discuss empirical research designed to investigate students' self-regulated learning, including its assessment. We also will evaluate how self-regulated learning can be fostered through instructional interventions.			
<b>8407</b>	<b>Self-efficacy</b>	<b>G</b>	<b>3</b>
This course explores the concept of collective efficacy, especially as media. The issue of self-efficacy in the social world and Bandura's theories will also be discussed.			
<b>8408</b>	<b>Race, Ethnicity, &amp; Multiculturalism in Education &amp; Psychology</b>	<b>G</b>	<b>3</b>
This seminar is designed to discuss current conceptual, theoretical, and methodological work in education and psychology and consider the role of race and ethnicity in students' school experiences, academic achievement, and development in multicultural settings.			
<b>8895</b>	<b>Seminars: Educational Psychology</b>	<b>G</b>	<b>2 - 5</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions.			
<b>8999</b>	<b>Dissertation or Thesis Research: Educational Psychology</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

## Educational Studies: Higher Educ & Student Affairs

<b>2239</b>	<b>Land-Grant Universities: Mission and Leadership</b>	<b>U</b>	<b>3</b>
This course provides students with the opportunity to learn about land-grant institutions and their place in the American higher education system, including the evolving nature of the land-grant mission in 21st century America, as well as how higher education leaders are reconfiguring our nation's preeminent public institutions to meet the needs of the communities they were designed to serve. Cross-listed in HDF5.			
<b>2570</b>	<b>Team and Organizational Leadership</b>	<b>U</b>	<b>3</b>
Overview of the theory and skills necessary for the practice of effective leadership in team and organizational settings. Leadership is explored as an integral component of a student's career and life plan. Repeatable to a maximum of 12 cr hrs.			
<b>2571S</b>	<b>Leadership in Community Service</b>	<b>U</b>	<b>3</b>
Introduction to the knowledge, skills, and competencies for responsible service and leadership in diverse communities. Preparation for engaged, responsible, and active community involvement and leadership. Please note: Although this course is repeatable in special circumstances (study abroad requirement, for example), only one iteration will count for GE credit. Repeatable to a maximum of 12 cr hrs. GE service learning course.			
<b>2572</b>	<b>Introduction to Leadership Development in Learning Organizations</b>	<b>U</b>	<b>3</b>
Concepts and strategies that are necessary to be an effective leader. Through a variety of leadership assessments, students will learn about their leadership styles and preferences. Repeatable to a maximum of 12 cr hrs.			
<b>2575</b>	<b>Student Organization Leadership Training</b>	<b>U</b>	<b>3</b>
Overview of the theory and skills necessary for the practice of effective leadership in student organization settings. Leadership is explored as an integral component of a student's activity in Ohio State student organizations. Repeatable to a maximum of 12 cr hrs.			
<b>2576</b>	<b>Leadership for Resident Advisors</b>	<b>U</b>	<b>1 - 3</b>
Provides an overview of the theory and skills necessary for the practice of effective leadership in team and organizational settings. Leadership is explored as an integral component of a student's role as a Resident Advisor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>2577</b>	<b>Diversity and Social Justice in Leadership</b>	<b>U</b>	<b>3</b>
Builds on intellectual and experiential engagement with issues of difference, diversity, social justice, and alliance building. GE diversity soc div in the US course.			
<b>2578</b>	<b>Leadership for Residence Managers</b>	<b>U</b>	<b>1 - 3</b>
Provides an overview of the theory and skills necessary for the practice of effective leadership in team and organizational settings. Leadership is explored as an integral component of a student's role as a Resident Manager. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>3200</b>	<b>So You Want to Work with College Students? Intro to Student Affairs</b>	<b>U</b>	<b>3</b>
Course focuses on the role of student development theory and its use in helping students examine how they grow as a result of the college experience.			
<b>3202</b>	<b>International Student Experience</b>	<b>U</b>	<b>3</b>
Course examines two aspects of internationalization on American college campuses: American students studying abroad and international students studying in the US.			

## 160 Educational Studies: Higher Educ & Student Affairs

**3221 Innovation and Leadership** U 3

This course is built on intellectual and experiential engagement with innovative leadership. Students are challenged to develop better problem solving skills in a team-oriented atmosphere, and through the use of creativity, learn to view challenges from new and different perspectives.  
Cross-listed in BusMHR.

**3573 Theories of Leadership in Learning Organizations** U 3

A focus on the particular opportunities and challenges that exist in understanding the theories related to leadership development in a complex and changing world.  
Repeatable to a maximum of 12 cr hrs.

**4201 The Asian American Student Experience** U 3

Course examines the histories and contemporary issues affecting Asian American students from the perspectives of educational history and policies from K-12 through higher education.

**4202 The Latinx Student Experience** U 3

Course examines the educational experiences and outcomes of Latinx students throughout the P-20 pipeline.

**4239 Leadership for Social Change** U 3

This course provides an opportunity for students to explore leadership theory and practice through a critical lens. By applying concepts and critiques from critical theory to well-known theories and models of leadership, this course will help students gain important skills in critical thinking and analysis and learn to deconstruct dominant ideologies and understandings of leadership.

**5193 Individual Studies: Higher Education and Student Affairs** U G 1 - 15

Individual study projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions.  
This course is graded S/U.

**5194 Group Studies: Higher Education and Student Affairs** U G 1 - 15

Group study projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.  
This course is graded S/U.

**7239 Land-Grant Universities: Mission and Leadership** G 3

This course provides students with the opportunity to learn about land-grant institutions and their place in the American higher education system, including the evolving nature of the land-grant mission in 21st century America, as well as how higher education leaders are reconfiguring our nation's preeminent public institutions to meet the needs of the communities they were designed to serve.

**7256 Qualitative Research in Higher Education Settings** G 3

This course provides an introduction to the philosophical and epistemological foundations that guide qualitative inquiry, and an overview of the methodologies and methods associated with qualitative research designs appropriate in higher education and student affairs settings.  
Cross-listed in ESQual.

**7500 Introduction to the Profession of Student Affairs** G 3

Overview of history of higher education and student affairs, the philosophical and theoretical foundations of the profession, codes of ethics, contemporary issues, and organizational structures.  
Prereq: Not open to students with credit for EduPL 780.

**7510 College Student Development I** G 3

An analysis of psychosocial theories of and research on college student development and their use in the design of educational practice.  
Prereq: Not open to students with credit for EduPL 782.

**7512 Interaction of Students and Environments** G 3

Analysis of components of the college environment and how students interact with it.  
Prereq: Not open to students with credit for EduPL 943.

**7513 Understanding Educational Organizations** G 3

Introduction to organization theory and its application to the study of leadership, culture, adaptation, and change in higher education.  
Prereq: Not open to students with credit for EduPL 813.

**7518 Leadership and Group Facilitation in Higher Education** G 3

Emphasis on group theory, processes, and dynamics and the development of structured learning experiences that facilitate interpersonal growth and group development in educational organizations.  
Prereq: Permission of instructor.

**7520 Diversity in Higher Education** G 3

Examines structural and cultural diversity in higher education in relation to race, ethnicity, gender, socio-economic status, sexual orientation, and religion of college/university constituents.  
Prereq: Not open to students with credit for EduPL 887.

**7530 Practicum in Higher Education and Student Affairs** G 4

Allows students to reflect on internship experiences by offering opportunities to share perspectives about duties and gain appreciation of how theory informs practice.  
Repeatable to a maximum of 12 cr hrs.

**7540 Higher Education Institutions and Core Academic Issues** G 3

Explores different types of institutions, and central issues related to academic quality, through a systems perspective, addressing missions, curriculum, faculty, students and evaluation.  
Prereq: Not open to students with credit for EduPL 806 or 842.

**7545 Case Studies in Higher Education Administration** G 3

Applies theoretical and scholarly research in the field of higher education to the analysis of real-life cases from U.S. colleges and universities.  
Prereq: Not open to students with credit for EduPL 858.

**7550 Women in Higher Education** G 3

Examines current situations of women in higher education; focuses on understanding the diversity of experiences and perspectives relevant to organizational structure, policy development, and curriculum.  
Prereq: Not open to students with credit for EduPL 839.

**7554 Admission and Retention of College Students** G 3

Considers the recruitment, admission, financial aid, advising, student services and retention processes that result in successful students. Social issues and theoretical models are discussed.  
Prereq: Not open to students with credit for EduPL 910.

**7558 Administration of Service-Learning Programs in Higher Education and Student Affairs** G 3

Examines the historical roots, concepts, and principles of service-learning in higher education; develops knowledge about service-learning and competencies for designing service-learning opportunities in higher education.  
Prereq: Not open to students with credit for EduPL 708.

**7562 Broad Access Institutions and Community Colleges** G 3

This course is designed for graduate students who are interested in learning about not-for-profit broad access institutions and community colleges through the lenses of race, ethnicity, and class.

**7564 Finance of Higher Education** G 3

A study of finance of higher education with emphasis on public issues affecting higher education; criteria for identifying and developing resources for higher education institutions; and perceived productivities of departmental and academic units.  
Prereq: Admission to Higher Education Student Affairs program or EducSt-ED program.

**7566 Strategy & University Leadership** G 3

Explores different approaches to developing strategy for colleges and universities. Examines leadership and decision-making broadly. Current special focus on the strategic use of technology in higher education, using the simulation Virtual U.  
Prereq: Not open to students with credit for EduPL 914.

**7570 Internationalizing Colleges and Universities** G 3

Examines the rationale and various strategies for internationalizing colleges & universities.  
Prereq: Not open to students with credit for EduPL 870.

**7574 Curriculum in Higher Education** G 3

An examination of the history, rationales, content, and organization of the curriculum in colleges and universities, with emphasis on the American experience.  
Prereq: Not open to students with credit for EduPL 841.

**7576 Assessment in Higher Education** G 3

An introduction to assessment practices in higher education. Students will consider the impact of assessment on student learning and success in a university environment.

**7750 Facilitating Intergroup Dialogues in Higher Education** G 3

This course is based on the intergroup dialogue model where two facilitators of differing social identities facilitate dialogue about critical issues relating to social identities (e.g., race, class, gender).

**7850 Critical Race Theory in Higher Education** G 3

Critical Race Theory in Higher Education explores the history and development of CRT over time, paying close attention to how CRT can be (and has been) applied and used to address issues of structural injustice and inequality in American society and higher education specifically.

**7854 Activism on College Campuses** G 3

The purpose of this course is to understand student activism as a form of engagement on college campuses, as well as how to support activists in their efforts.

**7897 Special Topics: Higher Education and Student Affairs** G 1 - 5

Special topics for professional educators and graduate students in selected areas; designed to provide the opportunity to update professional skills and review current research developments.  
Prereq: Grad standing, or registration in one of the professional schools. Repeatable to a maximum of 18 cr hrs or 18 completions.

**7999 Thesis Research: Higher Education and Student Affairs** G 1 - 18

Research for master's thesis purposes only.  
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions.  
This course is graded S/U.

## Educational Studies: Higher Educ & Student Affairs 161

**8191 Professional Internship** G 3 - 12  
Registration for approved Higher Education & Student Affairs professional/academic internships, and approved study abroad collaborative programs.  
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 4 completions.

**8193 Advanced Individual Studies: Higher Education and Student Affairs** G 1 - 15  
Advanced individual projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions.  
This course is graded S/U.

**8194 Advanced Group Studies: Higher Education and Student Affairs** G 1 - 15  
Advanced group projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.  
This course is graded S/U.

**8511 College Student Development II** G 3  
Analysis of theories of reflective judgment and intellectual development of college students and their uses in educational practice.  
Prereq: Not open to students with credit for EduPL 954 and 954A.

**8515 Advanced Seminar in Theories of College Student Development** G 3  
The purpose of this course is to provide an opportunity for in-depth study, dialogue, and reflection about theoretical frameworks for understanding the development of college students. Through guided reading focusing on a variety of theoretical perspectives, class discussions, and analysis of theories students will gain increased understanding about student development. ESHESA 7510 highly recommended but not required.

**8552 The Impact of College on Students** G 3  
Analysis of the philosophical assumptions and statistical evidence about the impact of college on students.  
Prereq: Not open to students with credit for EduPL 912.

**8560 Legal Aspects of Higher Education Administration** G 3  
Statutory, regulatory, and case law are analyzed for the development and maintenance of college and university policy and administrative decision making; recent legal developments in college and university governance patterns.  
Prereq: Not open to students with credit for EduPL 840.

**8850 Intersectionality in Higher Education** G 3  
This course is an essential course for graduate students who will conduct research on individual, social, and organizational diversity in higher education. There is an increasing need for educational research to address the role of multiple social identities simultaneously (for example, gender, race, and class) in affecting equity in educational outcomes.

**8895 Seminars: Higher Education and Student Affairs** G 2 - 5  
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times.  
Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions.

**8999 Dissertation or Thesis Research: Higher Education and Student Affairs** G 1 - 18  
Research for thesis or dissertation purposes only.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

### Educational Studies: Learning Technologies

**2011 Keys to Academic Success for Online Learners** U 2  
Introduces essential learning strategies and technologies to guide students to successful online learning experiences and ultimately academic success. This two-credit, seven-week online course is designed for students entering online degree programs or taking online courses.

**2211S Impact of Technology in Learning and Education** U 3  
In this service learning course you will learn about the theories, functions and practices of using technology to teach in formal and informal environments. We will use technology to support the learning goals of a community partner.

**2250 Technology, Equity, and Informal Learning** U 3  
Technology can be a transformative force in addressing social justice. In this class you will harness this potential to design and create informal learning experiences to address issues of technological equity.

**3251 Technology Interventions in Urban Schools and Communities** U 3  
In this course you will develop your media and computer skills to support social justice projects in urban schools and communities. You will then evaluate your projects for effectiveness and responsiveness.

**4270 Technology, Education and Community-based Programming** U 3  
Comprehensive educational programs can meet a variety of learning needs in a community. In this class you will design and develop collaborative community-based educational programming using technology.

**5193 Individual Studies: Educational Technology** U G 1 - 15  
Individual study projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions.  
This course is graded S/U.

**5194 Group Studies: Educational Technology** U G 1 - 15  
Group study projects.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.  
This course is graded S/U.

**5280 Educational Videography** U G 3  
Functions and operations of digital video production and post-production equipment; application of theory and research to the production of video materials for instruction.  
Prereq: Not open to students with credit for EduPL 680.

**5281 Introduction to Developing Educational Web Sites** U G 3  
In this introductory course students will begin to develop the visual, technical, and pedagogical design skills to create educational web sites.

**5286 Enhancing Teaching and Learning with Digital Resources** U G 3  
This course offers students a foundational understanding of the technology integration, instructional design and the evaluation of digital contents. It is intended to help pre-service teachers and in-service teachers to perform effective digital contents evaluation in teaching practice. Students will acquire the key concept and theories of the technology integration and the instructional design model.

**6223 Issues and Practices in Educational Technology** G 3  
Critical examinations of the issues raised by the implementation and use of information and communications technologies (ICTs) in education.  
Prereq: Not open to students with credit for EduPL 823.

**6273 Improving Professional Practice of Teaching with Technology** G 3  
Teachers learn to study the effective use of technology in teaching and learning in their classroom(s).

**6274 Instructional Design for K12 Technology Integration** G 3  
Apply instructional design practices to support the use of technology in teaching at the school and classroom levels. K12 instructional design topics include needs, formative and summative assessments, higher order learning outcomes, and technology-based differentiation.

**6278 Introduction to Instructional Design** G 3  
Paradigms of instructional design; phases of the instructional design process including needs assessment, learner, task, and curriculum analysis, instructional strategies, evaluation, and assessment.

**6282 Introduction to Teaching Online for K-12 Educators** G 3  
Introduction for educators to the methods of teaching K-12 students online.  
Prereq: Not open to students with credit for EduPL 682.

**7277 Computer-Supported Collaborative Learning** G 3  
Explores the ways in which technologies have impacted the research and practice of teaching and learning, especially collaborative learning, in K-12 schools and higher education.  
Prereq: Not open to students with credit for EduPL 677.

**7278 Formative Evaluation of Learning Technologies** G 3  
Theory and practice of developmental testing and field evaluation of learning technologies.

**7289 Practicum in Educational Technology** G 3  
Group observation, limited participation, and functional analysis of technology-enhanced learning environments.  
Prereq: Not open to students with credit for EduPL 889.

**7297 Designing Multimedia for Instruction** G 3  
Introduction to the instructional capabilities and hands-on development of multimedia; topics include relevant learning theories, authoring techniques and design models.  
Prereq: Not open to students with credit for EduPL 897.

**7392 Theories of Learning with Technology** G 3  
Overview of learning theories, and an in depth study of social and cultural influences on student, teacher, and organizational learning in technology-rich education settings.  
Prereq: Not open to students with credit for EduPL 892.

**7897 Special Topics: Educational Technology** G 1 - 5  
Special topics for professional educators and graduate students in selected areas; designed to provide the opportunity to update professional skills and review current research developments.  
Prereq: Grad standing, or registration in one of the professional schools. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.

**7999 Thesis Research: Educational Technology** G 1 - 18  
Research for master's thesis purposes only.  
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions.  
This course is graded S/U.

## 162 Educational Studies: Learning Technologies

<b>8189</b>	<b>Planned Field Experience: Educational Technology</b>	<b>G</b>	<b>1 - 15</b>
Planned professional teaching experience under supervision in a public school or other educational agency. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Individual Studies: Educational Technology</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Educational Technology</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8216</b>	<b>Scholarly Perspectives in Learning Technologies</b>	<b>G</b>	<b>3</b>
Survey of the theories and research within the field of Learning Technologies.			
<b>8226</b>	<b>Methods of Inquiry in Learning Technologies</b>	<b>G</b>	<b>3</b>
This course will introduce research methodologies specifically in technology-supported learning environments, including self-report and experience sampling method, data intensive research, big data movement, learning analytics, data collection issues, data access and privacy, content analysis of online discussions, social network analysis, as well as design based research.			
<b>8295</b>	<b>Applied Instructional Design</b>	<b>G</b>	<b>3</b>
Advanced theories of instructional design applied to the process of instructional development. Prereq: Not open to students with credit for EduPL 895.			
<b>8296</b>	<b>Learning Technologies Diffusion, Innovation, and Change</b>	<b>G</b>	<b>3</b>
The purpose of this course is to introduce you to practices and principles of technology diffusion, innovation, and strategic change in education. Attributes of innovation, the innovation-development and innovation-decision processes, leaders as change agents and strategies on managing change are explored.			
<b>8297</b>	<b>Internship: Learning Technologies</b>	<b>G</b>	<b>0 - 1</b>
The purpose of this course is for students in the Learning Technologies program to have the opportunity to engage in real-work experiences in a variety of workplace settings. These experiences do not require the students' physical presence in the internship site as most of these will be supported by technology and are unpaid. Prereq: A grade of B+ or above in 6278, or permission of instructor. This course is graded S/U.			
<b>8999</b>	<b>Dissertation or Thesis Research: Educational Technology</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

### Educational Studies: Philo & Hist of Education

<b>2241</b>	<b>Integrative Learning: How the Brain Learns</b>	<b>U</b>	<b>3</b>
Current and emerging theoretical and cultural conception of integrative learning based on current brain research. GE soc sci indivs and groups course.			
<b>3200H</b>	<b>Mindful Resilience: Individuals to Organizations</b>	<b>U</b>	<b>3</b>
The overarching framework for the course is a critical exploration of mindfulness practices and their influence on how individuals and groups function. Exploring the physiological impact of mindfulness on the individual, students will then be able to critically examine and apply these practices to communication, implicit bias, awareness of the self and others.			
<b>3206</b>	<b>School and Society</b>	<b>U</b>	<b>3</b>
Use of concepts and methods of history, philosophy and the social sciences to grasp the interrelationship between society and education. Prereq: Not open to students with credit for EduPL 306. GE diversity soc div in the US course.			
<b>3410</b>	<b>Philosophy of Education</b>	<b>U</b>	<b>3</b>
An introduction to key philosophical issues in education, focusing on the questions: Who should be educated? What should be taught? Who gets to decide? Prereq: Not open to students with credit for EduPL 650.01. GE cultures and ideas course.			
<b>4245</b>	<b>Education and Spirituality: Holistic Perspectives</b>	<b>U</b>	<b>3</b>
Cross-disciplinary examination of spirituality from personal and cultural perspectives, including feminist, ecological, and postmodern views, with inquiry into spiritual practices impact on education. Prereq: Not open to students with credit for EduPL 705.			
<b>4280</b>	<b>History of Modern Education</b>	<b>U</b>	<b>3</b>
Development of educational institutions, practices, and theories in the modern world, particularly in U.S., and the social and intellectual movements influencing them.			
<b>4403</b>	<b>Ethics and the Professional Context of Teaching</b>	<b>U</b>	<b>3</b>
Examination of the practice of teaching at national, state and local levels, highlighting the legal, professional, and ethical issues surrounding American schools and teaching.			

<b>5194</b>	<b>Group Studies: Philosophy and History of Education</b>	<b>U G</b>	<b>1 - 15</b>
Group study projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>5440</b>	<b>Philosophical Perspectives on Race, Education, and Citizenship</b>	<b>U G</b>	<b>3</b>
This course allows participants to pursue philosophical questions at the intersection of race, education, and political life. These include: Does education play a very specific role in racialized patterns of benefit/detriment? What role does race play in understandings of educational policy & practice? How does race affect understandings of 'education for citizenship'? Cross-listed in Philos.			
<b>6250</b>	<b>History of Education</b>	<b>G</b>	<b>3</b>
Examines the historical role of educational institutions in the development of nations; theoretical perspectives regarding the purposes of education and teaching practices. Prereq: Not open to students with credit for EduPL 650.02.			
<b>6403</b>	<b>Ethics and the Professional Context of Teaching</b>	<b>G</b>	<b>3</b>
Examines the practice of teaching at national, state, and local levels, highlighting the legal, professional, and ethical issues surrounding American schools and teaching.			
<b>6410</b>	<b>Philosophy of Education</b>	<b>G</b>	<b>3</b>
An introduction to key philosophical issues in education, focusing on the questions: Who should be educated? What should be taught? Who gets to decide? Prereq: Not open to students with credit for EduPL 650.01.			
<b>7222</b>	<b>History of Educational Policy</b>	<b>G</b>	<b>3</b>
Historical analysis of social, economic, and political factors shaping public school policy in the US since 1800. Prereq: Not open to students with credit for EduPL 722.			
<b>7240</b>	<b>Life History Interview Methods in Education</b>	<b>G</b>	<b>3</b>
Explores Life History interview methods in education; provides students opportunity to conduct life history interviews.			
<b>7324</b>	<b>History of Educational Administration</b>	<b>G</b>	<b>3</b>
A historical study of educational administration and leadership with particular attention to developments in the United States. Repeatable to a maximum of 6 cr hrs.			
<b>7410</b>	<b>Modern Trends in Philosophy of Education</b>	<b>G</b>	<b>3</b>
A study of contemporary work in philosophy of education and applications of that work to educational practice. Prereq: Not open to students with credit for EduPL 702.			
<b>7413</b>	<b>Professional Education: Theories and History</b>	<b>G</b>	<b>3</b>
A study of the history, development, organization, and theories of education for the various professions, with particular attention to experience in the United States. Prereq: Not open to students with credit for EduPL 915.			
<b>7414</b>	<b>Examining Knowledge, Truth, and Objectivity: Philosophy of Science for Educational Researchers</b>	<b>G</b>	<b>3</b>
Examines the ongoing controversies in educational research in light of work from the philosophy of science and social science. Prereq: Not open to students with credit for EduPL 882.			
<b>7572</b>	<b>History of Colleges and Universities</b>	<b>G</b>	<b>3</b>
A historical study of higher education with particular attention to the development of colleges and universities in the United States. Prereq: Not open to students with credit for EduPL 927.			
<b>7999</b>	<b>Thesis Research: Philosophy and History of Education</b>	<b>G</b>	<b>1 - 18</b>
Research for master's thesis purposes. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Individual Studies: Philosophy and History of Education</b>	<b>G</b>	<b>1 - 15</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Philosophy and History of Education</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8201</b>	<b>Social Foundations of Education</b>	<b>G</b>	<b>3</b>
Multiple theoretical perspectives that have shaped discussions regarding the social foundations of education from the 19th century to the present. Prereq: Not open to students with credit for EduPL 906.			

<b>8410</b>	<b>Ethics and Education: Equality, Freedom, and Justice in Schools</b>	<b>G</b>	<b>3</b>
Examines the moral dimensions of educational policy and practice. Topics of consideration will include school choice, educational equality and school funding, civic education, religious and cultural accommodations, and parent and student rights. Prereq: Not open to students with credit for EduPL 828.			
<b>8411</b>	<b>Educational Philosophy of John Dewey</b>	<b>G</b>	<b>3</b>
A systematic study of the writings of John Dewey and their bearings upon educational theory and practice. Prereq: Not open to students with credit for EduPL 902.			
<b>8895</b>	<b>Seminars: Philosophy and History of Education</b>	<b>G</b>	<b>2 - 5</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Prereq: Permission of instructor. Repeatable to a maximum of 24 or hrs or 12 completions.			
<b>8999</b>	<b>Dissertation or Thesis Research: Philosophy and History of Education</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

### Educational Studies: Qualitative Research in Educ

<b>7225</b>	<b>Approaches to Policy Inquiry</b>	<b>G</b>	<b>3</b>
Introduction to guiding principles for policy inquiry and analyses. The focus is on learning analytical vocabularies and approaches distinctive to policy inquiry. Students learn to read and think critically and creatively about public policy problems and solutions through the lens of research. Cross-listed in ESEPol.			
<b>7230</b>	<b>Qualitative Research for Educators</b>	<b>G</b>	<b>3</b>
Introduction to qualitative research at the Master's level and to the history, methods, and substantive topics of educational ethnography. Prereq: Not open to students with credit for EduPL 798.			
<b>7256</b>	<b>Qualitative Research in Higher Education Settings</b>	<b>G</b>	<b>3</b>
This course serves as an introduction to the field of qualitative research in higher education contexts. As such, it provides an introduction to the epistemological, theoretical, and methodological foundations that guide qualitative inquiry. Cross-listed in ESHESA.			
<b>8201</b>	<b>Community-Based Research and Evaluation in Educational Administration</b>	<b>G</b>	<b>3</b>
The course focuses on identifying, understanding and addressing problems of practice at the community level. Through class discussions and assignments, students will become familiar with developing community inquiry that centers on community strengths and issues through problem-mapping, evaluation and community based participatory research (CBR). Prereq: Permission of instructor. Cross-listed in ESEAdm.			
<b>8210</b>	<b>Qualitative Research: The Analysis of Interaction in Educational Settings</b>	<b>G</b>	<b>3</b>
Qualitative research and the analysis of interaction examines the history, conceptualizations and practices of educational ethnography, field work, and naturalistic inquiry. Prereq: Not open to students with credit for EduPL 817.01.			
<b>8211</b>	<b>Analysis of Classroom Discourse</b>	<b>G</b>	<b>3</b>
An introduction to the sequential analysis of classroom discourse structures. This course addresses the face-to-face organizations of classroom order, interaction and instruction. Prereq: 8210 or EduPL 8210, or permission of instructor. Not open to students with credit for EduPL 817.02 or 817.03.			
<b>8280</b>	<b>Qualitative Research in Education: Paradigms, Theories, and Exemplars</b>	<b>G</b>	<b>3</b>
Examination of issues and problems of qualitative research in education research, with emphasis on the connections of theory, methods, politics, design, and practice in the conduct of qualitative research in schools and other educational settings.			
<b>8290</b>	<b>Qualitative Research in Education: Methods and Analysis</b>	<b>G</b>	<b>3</b>
Qualitative research practicum. Students learn to use qualitative methods (including interviewing, observation, participant observation, and document-based research), analysis, and writing by designing and conducting a small-scale study. Prereq: 8280 or EduPL 8280.			
<b>8895</b>	<b>Seminars: Qualitative Research in Education</b>	<b>G</b>	<b>3</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Repeatable to a maximum of 24 or hrs.			

### Educational Studies: Quant Rsrch, Evaltn & Msrmnt

<b>3005</b>	<b>Learner Centered Classroom Assessment</b>	<b>U</b>	<b>3</b>
Offers an in-depth look at classroom assessment that meets the needs of 21st century teaching and learning. During this course, prospective teachers will determine how classroom assessment strategies can benefit their teaching practices and their students learning. They will study how to plan, develop, and manage student-centered assessment.			

<b>5193</b>	<b>Individual Studies: Quantitative Research, Evaluation, and Measurement</b>	<b>U G</b>	<b>1 - 15</b>
Individual study projects. Prereq: Permission of instructor. Repeatable to a maximum of 24 or hrs or 24 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies: Quantitative Research, Evaluation, and Measurement</b>	<b>U G</b>	<b>1 - 15</b>
Group study projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			
<b>5892</b>	<b>Workshops: Quantitative Research, Evaluation, and Measurement</b>	<b>U G</b>	<b>1 - 8</b>
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 9 completions. This course is graded S/U.			
<b>6621</b>	<b>Introduction to Educational Evaluation</b>	<b>G</b>	<b>3</b>
Introduction to educational evaluation, including history, models, theories, politics of evaluation, and ethical standards for evaluators and the conduct of evaluations.			
<b>6625</b>	<b>Introduction to Educational Research</b>	<b>G</b>	<b>3</b>
Designed to acquaint students with the nature of the research process and strategies for conducting studies of various aspects of education and related fields.			
<b>6641</b>	<b>Introduction to Educational Statistics</b>	<b>G</b>	<b>4</b>
An introduction to quantitative techniques, with an emphasis on educational settings. Prereq: Not open to students with credit for EduPL 786.			
<b>6661</b>	<b>Introduction to Educational Measurement</b>	<b>G</b>	<b>3</b>
Provides a general survey of measurement and testing, including test evaluation, basics of test construction, validity and reliability. Prereq: Introductory grad level statistics course (e.g., Stat 6641) or equiv. Not open to students with credit for EduPL 744.			
<b>7627</b>	<b>Sampling Designs and Survey Research Methods</b>	<b>G</b>	<b>3</b>
Comprehensive overview of methodological issues in sampling and survey research, particularly the impact of sources of error in survey research. Prereq: 6641 or equiv.			
<b>7631</b>	<b>Applied Evaluation Design</b>	<b>G</b>	<b>3</b>
Designed to acquaint students with the nature of the evaluation process and strategies for conducting educational and other evaluations, including logic models, methods, management, and cultural competence. Prereq: 6621 or EduPL 6621.			
<b>7635</b>	<b>Advanced Research Methods</b>	<b>G</b>	<b>3</b>
In-depth analysis of threats to causal inferences and methods for developing research designs to address those threats. Experimental, quasi-experimental, and data collection strategies will be discussed. Prereq: 6641 or EduPL 6641, or equiv.			
<b>7643</b>	<b>Categorical Data Analysis</b>	<b>G</b>	<b>3</b>
Introduction to the analysis of categorical outcomes and related models for non-normal response data. Prereq: 6641 or EduPL 6641. Not open to students with credit for EduPL 827.			
<b>7648</b>	<b>GLM I: Introduction to Regression and ANOVA</b>	<b>G</b>	<b>4</b>
Analysis of univariate outcomes via regression and analysis of variance models for experimental and non-experimental research designs. Connections between ANOVA and regression models will be stressed, including analysis of variance, multiple comparison procedures, factorial analysis of variance, regression models and methods of entry, coding for categorical variables, analysis of covariance. Prereq: 6641 or permission of instructor.			
<b>7651</b>	<b>Regression Analysis</b>	<b>G</b>	<b>4</b>
An introduction to the concepts of regression analysis and their application to research in education and the behavioral sciences. Prereq: 6641 or EduPL 6641, or equiv. Not open to students with credit for EduPL 881.			
<b>7658</b>	<b>GLM II: Advanced Regression and ANOVA</b>	<b>G</b>	<b>4</b>
This course covers advanced regression and analysis of variance through the lens of the linear and generalized linear model (GLM). Value of the GLM and its connections between anova and regression models, and treatment of continuous versus discrete outcomes will be stressed. We will cover interactions between categorical and continuous predictors in experimental and non-experimental designs, etc. Students should be comfortable analyzing data in SPSS; lab work will be supplemented with R. Prereq: 7648, or permission of instructor.			
<b>7661</b>	<b>Instrument Construction</b>	<b>G</b>	<b>3</b>
Design of instruments for use in educational research and assessment, including surveys, with emphasis on standards for educational and psychology testing and cultural issues in instrument design. Prereq: 6661 or EduPL 6661, or equiv; or permission of instructor. Repeatable to a maximum of 6 or hrs.			

## 164 Educational Studies: Quant Rsrch, Evaltn & Msrmnt

<b>7663</b>	<b>Test Reliability and Validity</b>	<b>G</b>	<b>3</b>
Conceptual underpinnings of test reliability and validity, historical examination of developments in reliability and validity, classical and modern trends of reliability and validity.			
<b>7667</b>	<b>Authentic Assessment</b>	<b>G</b>	<b>3</b>
Study of authentic assessment techniques including performance-based assessment, and portfolio assessment. Emphasis is on principles, procedures, issues, and innovations in authentic assessment. Prereq: One or more grad level course in assessment or measurement. Not open to students with credit for EduPL 878.			
<b>7897</b>	<b>Special Topics: Quantitative Research, Evaluation, and Measurement</b>	<b>G</b>	<b>1 - 5</b>
Special topics for professional educators and graduate students in selected areas; designed to provide the opportunity to update professional skills and review current research developments. Prereq: Grad standing, or registration in one of the professional schools. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research: Quantitative Research, Evaluation, and Measurement</b>	<b>G</b>	<b>1 - 18</b>
Research for master's thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Individual Studies: Quantitative Research, Evaluation, and Measurement</b>	<b>G</b>	<b>1 - 12</b>
Advanced individual projects. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Quantitative Research, Evaluation, and Measurement</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Students with permission of advisers may register for more than one section or the same section two or more times. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8648</b>	<b>Multivariate Analysis</b>	<b>G</b>	<b>4</b>
Design and analysis issues utilizing multivariate analysis of variance and discriminant analysis. Prereq: 7648 or EduPL 7648, or permission of instructor.			
<b>8658</b>	<b>Applied Multilevel Data Analysis</b>	<b>G</b>	<b>3</b>
Methods for the analysis of multilevel data with an emphasis on impact of intraclass correlation, analysis strategies, estimation, model testing, and interpretation. Prereq: 7651 or EduPL 7651, or equiv. Not open to students with credit for EduPL 938.			
<b>8659</b>	<b>Structural Equation Modeling</b>	<b>G</b>	<b>3</b>
Basic concepts of structural equation modeling, including approaches to regression, path analysis, confirmatory factor analysis, and structural model building, as well as some advanced models. Prereq: Students should have successfully completed several introductory and intermediate level graduate statistics courses. Not open to students with credit for EduPL 883.			
<b>8668</b>	<b>Longitudinal Data Analysis</b>	<b>G</b>	<b>3</b>
This course is designed to teach students the uses of longitudinal data analysis in educational/social science research. We will cover modern methods to analyze longitudinal data mainly under the multilevel modeling framework. The traditional approaches, such as repeated measures of ANOVA and MANOVA, will be briefly discussed. Students are expected to have strong background in regression analysis (ANOVA and Multiple Regression). Prereq: 7651.			
<b>8669</b>	<b>Advanced Structural Equation Modeling</b>	<b>G</b>	<b>3</b>
This course will cover the advanced topics of structural equation models including: structural equation models with categorical observed variables, interaction effects between latent factors, multilevel structural equation models, latent growth models, and growth mixture models. These techniques are useful for both experimental and non-experimental data; for cross-sectional datasets; and others. Prereq: 8659.			
<b>8674</b>	<b>Scaling and Item Response Theory (IRT)</b>	<b>G</b>	<b>3</b>
Models and methods for scaling data, with a focus on various IRT methods including the one-parameter model. Prereq: 6661 or EduPL 6661. Not open to students with credit for EduPL 874.			
<b>8725</b>	<b>Quantitative Methods Capstone Seminar</b>	<b>G</b>	<b>3</b>
This seminar is the capstone experience of the GIS in Quantitative Research Methods. Much of the work will be student-identified and student-led. The course will consist of work in: identification of new or emerging topics or software in quantitative methods; readings and discussion on advanced topics; student-led demonstrations or presentations; and GISQRM paper updates and progress reports. Students entering this course must have completed or nearly completed their GISQRM coursework. See the GISQRM website for details. Cross-listed in HDFS and VetPrev.			

<b>8895</b>	<b>Seminars: Quantitative Research, Evaluation, and Measurement</b>	<b>G</b>	<b>2 - 5</b>
Seminar in topics of special interest. Students with permission of advisers may register for more than one section of 8895, or for the same section two or more times. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions.			
<b>8999</b>	<b>Dissertation or Thesis Research: Quantitative Research, Evaluation, and Measurement</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

## Educational Studies: School Psychology

<b>6189</b>	<b>Field Based Experience in School Psychology</b>	<b>G</b>	<b>3</b>
Practical experience conducting school psychological services in public schools. Repeatable to a maximum of 6 cr hrs.			
<b>7028</b>	<b>Cultural Diversity</b>	<b>G</b>	<b>3</b>
Provide students with the opportunity to develop a multicultural awareness as they explore the impact of an increasingly diverse society in the United States. Prereq: Not open to students with credit for EduPAES 728.			
<b>7029</b>	<b>Urban Issues in Education</b>	<b>G</b>	<b>2</b>
Understanding of the dynamics of urban schools and the relationship between minority status and poverty, and educational achievement in urban schools. Prereq: Not open to students with credit for EduPAES 729.			
<b>7189</b>	<b>Advanced Practicum in School Psychology I</b>	<b>G</b>	<b>3</b>
Advanced practical experiences conducting school psychological services in multiple settings. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7193</b>	<b>Advanced Individual Studies: School Psychology</b>	<b>G</b>	<b>1 - 12</b>
Advanced individual studies in School Psychology. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8056</b>	<b>Roles and Function of School Psychologists</b>	<b>G</b>	<b>3</b>
Introduction to the multiple professional roles and functions of school psychologists including professional and ethical principles of professional practice. Prereq: Not open to students with credit for EduPAES 856.			
<b>8057</b>	<b>Cognitive Assessment</b>	<b>G</b>	<b>3</b>
This course trains school psychology student in the scientist-practitioner model of psychological assessment. The course covers theories of intelligence and the administration, scoring, and interpretation of cognitive ability assessments. Use of these assessments in disability determination and consultation in the schools and clinical settings will be stressed. Prereq: Not open to students with credit for EduPAES 857 or 858.			
<b>8058</b>	<b>Assessment of Academic Achievement</b>	<b>G</b>	<b>3</b>
Explores various ways to assess academic achievement for the purposes of diagnosing disability and other learning needs. Students will be exposed to a variety of academic achievement assessments and learn to administer, score, and interpret them. Types of academic achievement assessments will include norm-referenced standardized academic achievement and curriculum-based instruments. Prereq: 8057.			
<b>8060</b>	<b>Linking Academic Assessment to Intervention</b>	<b>G</b>	<b>3</b>
Using curriculum-based assessments to target specific academic skills and appropriate interventions, implementing academic interventions, and evaluating their effectiveness. Prereq: Not open to students with credit for EduPAES 860.			
<b>8077</b>	<b>Mental Health I: Mental Health Issues in the Schools</b>	<b>G</b>	<b>3</b>
Child and adolescent psychopathology, characteristics, etiology, and empirically supported interventions and programming that address these issues. Prereq: Not open to students with credit for EduPAES 877.			
<b>8078</b>	<b>Mental Health II: Counseling in the Schools</b>	<b>G</b>	<b>3</b>
Common social-emotional issues of children and adolescents and how to effectively implement empirically supported interventions to address these issues with a focus on counseling in the schools. Prereq: 8077 or EduPAES 8077, or permission of instructor.			
<b>8079</b>	<b>Mental Health III: Social Emotional Assessment</b>	<b>G</b>	<b>3</b>
Social-Emotional and behavioral assessment of children in the school setting; introduction to linking assessment to intervention; and discussion of developmental, diversity, and urban issues related to assessment with children. Prereq: Not open to students with credit for EduPAES 878.			
<b>8080</b>	<b>Biological Basis of Behavior: Neuropsychology in the Schools</b>	<b>G</b>	<b>3</b>
Discussion of brain development and functioning as it relates to typical and atypical outcomes among children and adolescents; overview of learning and psychological disorders from a school neuropsychological perspective.			

## Educational Studies: School Psychology 165

**8081 Professional Ethics and Supervision in School Psychology** G 3

This course is designed to help students understand and apply professional ethics and supervision skills in the professional practice of school psychology.  
Prereq: 8056.

**8082 School-based Consultation: Implementing Behavioral Interventions** G 4

Development of a conceptual understanding of school-based consultation and its use as the foundation for the implementation of behavioral interventions both individual and group.  
Prereq: Not open to students with credit for EduPAES 882 or 883.

**8097 Psychological Services for Early Childhood Populations** G 3

School psychologists role with early childhood populations including understanding laws, assessments, evaluations, curriculum, instruction associated with early childhood intervention services.

**8189 Advanced Practicum in School Psychology II** G 2

Application of school psychology supervisory and leadership skills.  
Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

**8191.01 EdS Internship: School Psychology** G 3 - 6

Application of school psychologists roles and functions as intern in a public school setting for EdS students.  
Prereq: Majoring in School Psychology. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.

**8191.02 Doctoral Internship: School Psychology** G 3 - 6

Application of school psychology roles and functions as intern in a public school setting for PhD students.  
Prereq: Admission to the School Psychology major. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.

**8998 Research: School Psychology** G 1 - 12

Conducting dissertation research.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**8999 Dissertation/Thesis Research: School Psychology** G 1 - 12

Conducting thesis or dissertation research in school psychology.  
Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

### Educational Studies: Special Education

**2251 Introduction to the Special Education Profession** U 3

An overview of special education, including individuals with sensory, orthopedic, behavioral, or learning disabilities plus individuals identified as gifted.

**2650 Introduction to Young Children with Exceptionalities** U 3

Intro to Young Children with Exceptionalities is an overview of the education and early care of exceptional learners from birth to the early grades. This course will focus on young children whose attributes/learning abilities differ from the norm to such an extent that an individual family service plan (IFSP) or an individualized program of special education (IEP) is required to meet their needs.

**3189 Field Experience: Special Education** U 1 - 12

Professional service in school or community settings.  
Prereq: Admission to the Special Education program, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**4191.01 Student Teaching in Special Education: Early Childhood** U 12

Student teaching for Special Education students in early childhood intervention.  
Prereq: 5761. This course is graded S/U.

**4191.02 Student Teaching in Special Education: Mild/Moderate** U 12

Student teaching for Special Education students in mild/moderate intervention.  
Prereq: 5735. This course is graded S/U.

**4191.03 Student Teaching in Special Education: Moderate/Intensive** U 12

Student teaching for Special Education students in moderate/intensive intervention.  
Prereq: 5737. This course is graded S/U.

**5189 Field Experience: Special Education** U G 1 - 12

Professional service in school or community settings.  
Prereq: Admission in Special Education program, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**5189.01 Field Experience: Special Education: Early Childhood** U G 1 - 12

Professional service in school or community settings.  
Prereq: Admission in Special Education: Early Childhood program, or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**5189.02 Field Experience: Special Education: Mild/Moderate** U G 1 - 12

Professional service in school or community settings.  
Prereq: Admission in Special Education: Mild/Moderate program, or permission of the instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**5189.03 Field Experience: Special Education:** U G 1 - 12

Professional service in school or community settings.  
Prereq: Admission in Special Education: Moderate/Intensive program, or permission of instructor. Repeatable to a maximum of 12 ch hrs or 12 completions. This course is graded S/U.

**5191.01 Supervised Teaching in Special Education: Deaf & Hard of Hearing** U G 8

This course is designed to assist preservice teachers in developing the necessary skills required for beginning level inservice teachers in P-12 settings for d/Deaf and hard of hearing children. Candidates are expected to perform all activities required of a typical classroom teacher.  
Prereq: 5189, Grad standing, and permission of instructor.

**5193 Individual Studies: Special Education** U G 1 - 12

Independent study in Special Education.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**5239 Effective Instruction for Students with Dysgraphia and Other Learning Differences/Disabilities** U G 3

Dysgraphia describes a condition that manifests as fine motor skill difficulties and language processing deficits that make writing tasks more difficult and time-consuming for students with dysgraphia. Enrollees will examine developmental theories and research related to the condition. They will also learn and implement effective instruction for struggling writers.

**5505 Multi-Tiered Systems of Support** U G 3

Introduces students to the concept of multi-tiered systems of support. Emphasis on 1) strategies for assessing and teaching social skills to diverse learners in inclusive classrooms;2) designing and implementing multi-tiered instructions within Response-to-Intervention Model;3) collaborative differentiated instruction for whole class,small group, one-on-one teaching.  
Prereq: 5650 or EduTL 5501. Cross-listed in EduTL.

**5651 Introduction to Exceptional Children** U G 3

Introduction to Exceptional Children is an overview of the education of exceptional learners. This course focuses on students whose attributes/learning abilities differ from the norm to such an extent that an individualized program of special education is required to meet their needs. Enrollees will learn about the categories of special education (and their criteria), prevalence, and demographics.

**5722 Language and Communication Development for Children with Mild to Intensive Disabilities** U G 3

Examines current principles and practices in the development of alternative communication programs for individuals with mild to intensive disabilities.  
Prereq: Admission to special education program, or Grad standing, or permission of instructor.

**5722.01 Language and Communication Development for Children with Mild to Intensive Disabilities: Early Child** U G 3

Examines current principles and practices in the development of alternative communication programs for individuals with moderate to intensive disabilities.  
Prereq: Admission in Special Education: Early Childhood program, or permission of instructor.

**5722.02 Language and Communication Development for Children with Mild to Intensive Disabilities: Mild/Mod** U G 3

Examines current principles and practices in the development of alternative communication programs for individuals with mild to intensive disabilities.  
Prereq: Admission in Special Education: Mild/Moderate program, or permission of instructor.

**5722.03 Language and Communication Development for Children with Mild to Intensive Disabilities: Mod/Int** U G 3

Examines current principles and practices in the development of alternative communication programs for individuals with mild to intensive disabilities.  
Prereq: Admission in Special Education: Moderate-Intensive program, or permission of instructor.

**5722.04 Language and Communication Development for Children with Mild to Intensive Disabilities: HI** U G 3

Examines current principles and practices in the development of alternative communication programs for individuals with mild to intensive disabilities.  
Prereq: Admission to Special Education: Hearing Impairment program, or permission of instructor.

**5734 Methods of Instruction for Elementary Children with Mild/Moderate Disabilities** U G 3

This is a method course with a field placement that will provide students with information and strategies for working with children who have mild disabilities.  
Prereq: 5742 or EduPAES 5742 (742). Open only to special education majors, or by permission of instructor. Not open to students with credit for EduPAES 734.

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### 5734.01 Methods of Instruction for Elementary Children with Mild/Moderate Disabilities: Early Childhood U G 3

This is a method course with a field placement that will provide students with information and strategies for working with children who have mild disabilities.  
Prereq: 5742, or 5742.01, or EduPAES 5742 (742); and enrollment in Special Education: Early Childhood major; or permission of instructor.

### 5734.02 Methods of Instruction for Elementary Children with Mild/Moderate Disabilities: Mild/Moderate U G 3

This is a method course with a field placement that will provide students with information and strategies for working with children who have mild disabilities.  
Prereq: 5742 or 5734.02; and enrollment in Special Education: Mild/Moderate major; or permission of instructor.

### 5735 Methods of Instruction for Secondary Students with Mild/Moderate Disabilities U G 3

Provides advanced training in specialized techniques and advanced teaching strategies for middle and high school students with mild/moderate disabilities.  
Prereq: 5743 or EduPAES 5743, and Special Education major; or permission of instructor. Not open to students with credit for EduPAES 735.

### 5735.02 Methods of Instruction for Secondary Students with Mild/Moderate Disabilities: Mild/Moderate U G 3

Provides advanced training in specialized techniques and advanced teaching strategies for middle and high school students with mild/moderate disabilities.  
Prereq: 5743, or 5743.02, or EduPAES 5743; and enrollment in Special Education: Mild to Moderate major; or permission of instructor.

### 5736 Methods of Instruction I for Students with Moderate/Intensive Disabilities U G 3

Introduction to designing and developing instructional programs for children with moderate to intensive disabilities, provides skills to identify instructional goals and objectives for children using meaningful assessment techniques.  
Prereq: 5742 or EduPAES 5742, and admission to Special Education program; or permission of instructor. Not open to students with credit for EduPAES 736.

### 5736.03 Methods of Instruction I for Students with Moderate/Intensive Disabilities: Moderate/Intensive U G 3

Introduction to designing and developing instructional programs for children with moderate to intensive disabilities, provides skills to identify instructional goals and objectives for children using meaningful assessment techniques.  
Prereq: 5742, or 5742.02, or EduPAES 5742; and admission in Special Education: Moderate to Intensive program; or permission of instructor. Not open to students with credit for EduPAES 736.

### 5737 Methods of Instruction II for Students with Moderate/Intensive Disabilities with practicum U G 3

Provides teacher candidates with the skills to implement and evaluate student performance using systematic data collection so that skill acquisition can be monitored over time.  
Prereq: Open only to special education majors, or by permission of instructor. Not open to students with credit for EduPAES 737.

### 5737.03 Methods of Instruction II for Students with Moderate/Intensive Disabilities with practicum: M/I U G 3

Provides teacher candidates with the skills to implement and evaluate student performance using systematic data collection so that skill acquisition can be monitored over time.  
Prereq: Enrollment in Special Education: Moderate/Intensive majors, or permission of instructor.

### 5738 Reading Instruction for Children with Disabilities or Severe Reading Deficits U G 3

Information on how to effectively instruct reading to children with reading disabilities. Students will be paired with an urban learner who is significantly below basic reading level for his/her grade.  
Prereq: 5734 and 5736, or EduPAES 5734 (734) and 5736 (736), and permission of instructor; or Grad standing, and enrollment in the Special Education Program. Repeatable to a maximum of 6 cr hrs.

### 5738.01 Reading Instruction for Children with Disabilities or Severe Reading Deficits: Early Childhood U G 3

Information on how to effectively instruct reading to children with reading disabilities. Students will be paired with an urban learner whom is significantly below basic reading level for his/her grade.  
Prereq: 5734 or 5734.01, and 5736 or 5736.01; or EduPAES 5734 (734), and 5736 (735); or Grad standing in Special Education: Early Childhood. Coreq: 5189.01. Repeatable to a maximum of 6 ch hrs.

### 5738.02 Reading Instruction for Children with Disabilities or Severe Reading Deficits: Mild/Moderate U G 3

Information on how to effectively instruct reading to children with reading disabilities. Students will be paired with an urban learner whom is significantly below basic reading level for his/her grade.  
Prereq: 5734 or 5734.02, and 5736 or 5736.02; or EduPAES 5734 (734), and 5736 (735); or Grad standing in Special Education: Mild/Moderate. Coreq: 5189.02. Repeatable to a maximum of 6 cr hrs.

### 5738.03 Reading Instruction for Children with Disabilities or Severe Reading Deficits: Moderate/Intensive U G 3

Information on how to effectively instruct reading to children with reading disabilities. Students will be paired with an urban learner who is significantly below basic reading level for his/her grade.  
Prereq: 5734 or 5734.03, and 5736 or 5736.03; or EduPAES 5734 (734), and 5736 (735); or Grad standing in Special Education: Moderate/Intensive. Coreq: 5189.03. Repeatable to a maximum of 6 cr hrs.

### 5742 Applied Behavior Analysis for Teachers U G 3

Study of principles of behavior for the development and maintenance of academic and social behaviors.

### 5743 Educational Assessment of Students With Mild/Moderate Disabilities U G 3

Advanced training and specialized techniques in teaching methods for middle and secondary students with mild disabilities.  
Prereq: 5742; and admission to the Special Education program, or Grad standing; or permission of instructor.

### 5750 Classroom and Behavior Management for Students with Disabilities U G 3

Developing a positive learning environment and understanding definition of social skills; importance of teaching social skills, special social skill needs of individuals with disabilities; how to assess, teach, and evaluate social skill instruction.  
Prereq: Admission to the Special Education program, or permission of instructor.

### 5755 Inclusive Classroom Management U G 3

Students will learn best practice for positive behavior support and inclusion of students with special needs.  
Prereq: 5742.

### 5760 Educational Assessment in Early Childhood Special Education U G 3

Study of the assessment of infants and preschoolers and young children with special needs with particular emphasis placed on measurement for screening and instructional program planning.  
Prereq: Admission to Special Education program, or Grad standing, or permission of instructor.

### 5760.01 Assessment in Early Childhood Special Education U G 3

Study of the assessment of infants and preschoolers and young children with special needs with particular emphasis placed on measurement for screening and instructional program planning. It is recommended to complete ESSpEd 5742 prior to this course, but not required.  
Prereq: Grad standing, or admission in Special Education: Early Childhood program, or permission of instructor.

### 5761 Educational Intervention for Young Children with Disabilities U G 3

Study of instructional programming for language, communication, sensorimotor, cognitive, and social development in early childhood environments.  
Prereq: Admission to Special Education program, or Grad standing, or permission of instructor. Not open to students with credit for EduPAES 761.

### 5761.01 Instructional Programming in Early Childhood Special Education U G 3

Study of instructional programming for language, communication, sensorimotor, cognitive, and social development in early childhood environments.  
Prereq: Grad standing, or admission in Special Education: Early Childhood program, or permission of instructor.

### 5769 Delivering Effective Services to Enhance the Inclusion of Students with Special Needs U G 3

Designed to prepare special education teachers to work with administrators, general education teachers, parents and paraprofessionals to deliver instruction in inclusive settings.  
Prereq: Special Education major, or permission of instructor. Not open to students with credit for EduPAES 769.

### 6556 Reading for Students who are Deaf or Hard of Hearing G 3

Designed to introduce students to selected issues, concerning literacy and deafness: theories of literacy, research, and current practices, reading materials and assessment, and the relationship between reading and writing.

### 6650 Introduction to Exceptional Children G 3

An overview of the education of exceptional learners including a discussion of their characteristics and a review of historical approaches to their education and of contemporary educational practices.

### 7189 Advanced Field Placement in Orientation and Mobility G 1

This course addresses observing and co-teaching a variety of blind/low vision students under the direct supervision of a Certified Orientation and Mobility Specialists (COMS) within a variety of settings. Emphasis is experience working with a diverse group of students, in a variety of settings; moving to reflection on the process and continuity of teaching (a) student(s) over time.  
Prereq: Admission to Orientation and Mobility licensure program. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.



## Educational Studies: Special Education 167

<b>7239</b>	<b>Effective Instruction for Students with Dysgraphia and Other Learning Differences/Disabilities</b>	<b>G</b>	<b>3</b>
This course serves as part of a larger study of struggling students with learning and attention issues. In this course, enrollees will examine developmental theories related to dysgraphia. They will also read research that supports the best practices and effective instruction for struggling writers at all age and grade levels and with various learning differences and/or disabilities.			
<b>7550</b>	<b>Advanced Studies in Deafness</b>	<b>G</b>	<b>3</b>
Designed to introduce graduate students to advanced issues concerning the linguistic, cognitive, and psychosocial aspects of students who are deaf and hearing impaired, including educational approaches and bilingualism/second-language. Prereq: Not open to students with credit for EduTL 832.			
<b>7830</b>	<b>Urban Education &amp; Precision Teaching</b>	<b>G</b>	<b>3</b>
Provides information about the challenges in urban education and how Precision Teaching can be used to address these challenges. Prereq: 5742 or EduPAES 5742; Grad standing or admission to the special education program; or permission of instructor.			
<b>7831</b>	<b>High Incidence Disability (HID) Seminar</b>	<b>G</b>	<b>3</b>
This is a doctoral seminar designed to address the critical issues and research in the area of high incidence disabilities (e.g., learning disabilities, behavior disorders, dyslexia, mild cognitive disabilities, attention deficit disorder, etc.). Prereq: Grad standing in ESSpED or related field.			
<b>7833</b>	<b>Severe Disabilities Seminar</b>	<b>G</b>	<b>3</b>
This course will provide graduate students the opportunity to explore current topics and issues specific to people with severe disabilities. In this course, we will explore the evidence-base related to improving outcomes for people with severe disabilities, directions that future researchers might take, and challenges currently faced by the field. Prereq: Grad standing in ESSpED or related field.			
<b>7999</b>	<b>Thesis Research: Special Education</b>	<b>G</b>	<b>1 - 6</b>
Research for master's thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 30 completions. This course is graded S/U.			
<b>8189</b>	<b>Field Experience in Special Education</b>	<b>G</b>	<b>1 - 15</b>
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision. Prereq: Admission to Special Education graduate program or permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions.			
<b>8191</b>	<b>BCBA Supervision</b>	<b>G</b>	<b>3</b>
This course is designed to provide students seeking BCBA certification with the required experiences in applied behavior analysis in school and clinical settings. Prereq: Admission to graduate program in Special Education (either MA or PhD level). Repeatable to a maximum of 12 or hrs. This course is graded S/U.			
<b>8193</b>	<b>Advanced Individual Studies: Special Education</b>	<b>G</b>	<b>1 - 12</b>
Advanced independent study in Special Education. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			
<b>8200</b>	<b>Basic Behavior Analysis</b>	<b>G</b>	<b>3</b>
This course provides students with an overview of basic behavioral processes related to human and nonhuman learning. This course focuses on the basic principles of the science of behavior, the direct application of these principles, and the use of data collection procedures for analysis of behavior.			
<b>8300</b>	<b>Behavioral Assessment</b>	<b>G</b>	<b>3</b>
This course will provide an overview of process for determining the function of a behavior and how to align behavioral interventions with the results of functional assessments. Content for this course is based on the BCBA Task List (5th ed.), which sets forth the knowledge and skills that serve as the foundation for BCBA certification. Specifically, this is an application-oriented course. A basic understanding of the principles of applied behavior analysis is required prior to enrollment.			
<b>8400</b>	<b>Behavioral Interventions in Special Education</b>	<b>G</b>	<b>4</b>
The purpose of this course is to equip practitioners with the knowledge and skills needed to effectively and efficiently produce successful outcomes for individuals with disabilities or who struggle with learning. Prereq: 8200, or permission of instructor.			
<b>8500</b>	<b>Personnel Management and Supervision</b>	<b>G</b>	<b>2</b>
Providing supervised field experience is often one of several job responsibilities required of a Board Certified Behavior Analyst (BCBA). Providing BCBA supervision requires the synthesis of interpersonal, management, problem-solving, and mentoring skills as well as a thorough knowledge of the certification board's field experience standards and evidence-based practices. Prereq: 8200, or permission of instructor.			
<b>8832</b>	<b>Advanced Applied Behavior Analysis</b>	<b>G</b>	<b>3</b>
Advanced study of principles of behavior for the development and maintenance of academic and social behaviors.			

<b>8861</b>	<b>Single Case Research Design</b>	<b>G</b>	<b>3</b>
Designing, conducting, and critically evaluating research involving applications of the experimental analysis of behavior to problems and needs of individuals with disabilities in educational, clinical, and community settings.			
<b>8871</b>	<b>Behaviorism: Schedules and Translational Research</b>	<b>G</b>	<b>3</b>
Focuses on schedules of reinforcement and specialized areas of basic research that have influenced application with persons with developmental disabilities. Prereq: 8861 or EduPAES 8861 (861), and major in Special Education; or permission of instructor. Not open to students with credit for EduPAES 861.			
<b>8874</b>	<b>Behavioral Research in Education</b>	<b>G</b>	<b>3</b>
Examines methodological issues, strategies, tactics, advances, and ethical standards in behavioral research. Concepts will be applied in reviews and critiques of research in education. Prereq: 8871 or EduPAES 8871, and major in Special Education; or permission of instructor. Not open to students with credit for EduPAES 874.			
<b>8875</b>	<b>Professional Writing/Publishing in Special Education</b>	<b>G</b>	<b>3</b>
Allows students to acquire skills needed to write for publication in refereed journals. Prereq: Admission to Special Education program, or Grad standing, or permission of instructor. Not open to students with credit for EduPAES 888.			
<b>8891</b>	<b>Contemporary Issues in Special Education</b>	<b>G</b>	<b>3 - 9</b>
Weekly teleconference seminars discussing current issues and research in special education with prominent scholars from other universities and research centers. Prereq: Admission to Grad program in Special Education, or permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions.			
<b>8916</b>	<b>Behaviorism: Applications and Implications of Skinner's Works</b>	<b>G</b>	<b>1½</b>
Students will be introduced to radical behaviorism as the philosophical foundation of behavior analysis and the implications of that philosophy for research and practice in special education. Graduate students preparing for leadership positions in special education should acquire a thorough understanding and appreciation of the philosophical foundations of the science of behavior. Prereq: 5742 or EduPAES 5742 (742), and a major in Special Education; or permission of instructor. Not open to students with credit for EduPAES 917.			
<b>8917</b>	<b>Verbal Behavior</b>	<b>G</b>	<b>1½</b>
Overview along with the implications and applications of Skinner's Verbal Behavior. Empirical and conceptual advances in the analysis of verbal behavior will be reviewed. Prereq: 5742 or EduPAES 5742 (742), and major in Special Education; or permission of instructor. Not open to students with credit for EduPAES 917.			
<b>8921</b>	<b>Ethical Issues in Applied Behavior Analysis</b>	<b>G</b>	<b>3</b>
Allows students to understand and engage in decision-making regarding general and special education practices. Identify critical issues of legal cases and ethical dilemmas. Prereq: Enrollment in special education major, or permission of instructor.			
<b>8922</b>	<b>Topics in Early Childhood Special Education</b>	<b>G</b>	<b>3</b>
Review of evidence based practices in and methodological issues in early childhood special education. Prereq: 5742 and 8871, or EduPAES 5742 (742) and 8871 (861); Grad standing, admission to the special education program, or by permission of instructor. Not open to students who have taken EduPAES 925.23.			
<b>8998</b>	<b>Research: Special Education</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis and dissertation purposes only. Prereq: Grad standing in Special Education, or permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation/Thesis Research: Special Education</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis and dissertation purposes only. Prereq: Major in Special Education, or permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			

## Educational Studies: Teacher Educ Policy & Ldrshp

<b>5194</b>	<b>Group Studies: Teacher Education</b>	<b>U G</b>	<b>1 - 15</b>
Group study projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Teacher Education</b>	<b>G</b>	<b>1 - 15</b>
Advanced group projects. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.			

## Educational Studies: Workforce Development & Educ

<b>4998</b>	<b>Research: Workforce Development &amp; Education</b>	<b>U</b>	<b>1 - 3</b>
Independent research on technical education and training content. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.			

## 168 Educational Studies: Workforce Development & Educ

<b>5189.01</b>	<b>Career and Technical Education Field Experience I</b>	<b>U G</b>	<b>2</b>	<b>5668</b>	<b>Career and Technical Education Capstone</b>	<b>U G</b>	<b>1</b>
Observation of career and technical education classrooms in a field-based setting. Prereq: Enrollment in EHE major, or Grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.				Development of professional teaching portfolio. Prereq: Standing in EHE, or Grad standing, or permission of instructor. Not open to students with credit for EduPAES 575.06 or 668.06.			
<b>5189.02</b>	<b>Career and Technical Education Field Experience II</b>	<b>U G</b>	<b>2</b>	<b>5672</b>	<b>Lifelong Learning in the Adult Years</b>	<b>U G</b>	<b>3</b>
Supervised clinical teaching in a career and technical education classroom, field-based setting. Prereq: Enrollment in EHE major, or Grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.				Nature, extent and significance of adult in society. History, forms, methodologies, theoretical issues and philosophies. Prereq: Jr standing or above. Not open to students with credit for EduPAES 672.			
<b>5189.03</b>	<b>Career and Technical Education Clinical Field Experience I</b>	<b>U G</b>	<b>2</b>	<b>5677</b>	<b>New Career and Technical Education Teacher Clinic</b>	<b>U G</b>	<b>4</b>
Supervised clinical teaching in a career and technical education setting. Prereq: Grad or EHE standing, or permission of instructor. Not open to students with credit for EduPAES 575.02 or 668.02.				Development of basic cognitive and performance skills for new career and technical education teachers. Prereq: Standing in EHE, or Grad standing, or permission of instructor. Not open to students with credit for EduPAES 668.01. This course is graded S/U.			
<b>5189.04</b>	<b>Career and Technical Education Clinical Field Experience II</b>	<b>U G</b>	<b>2</b>	<b>5680</b>	<b>Introduction to Career Based Intervention</b>	<b>U G</b>	<b>2</b>
Supervised clinical teaching in a career and technical education setting. Prereq: Grad standing, EHE enrollment, or permission of instructor. Not open to students with credit for EduPAES 575.03 or 668.03.				The initial course for adding the Career Based Intervention Endorsement to an existing teaching license. Prereq: Grad standing, or enrollment in EHE major, or permission of instructor. Not open to students with credit for EduPAES 678.			
<b>5193</b>	<b>Individual Studies: Workforce Development &amp; Education</b>	<b>U G</b>	<b>1 - 12</b>	<b>5701</b>	<b>Fundamentals of Teaching Adults Online</b>	<b>U G</b>	<b>3</b>
Independent research on content and issues related to Workforce Development and Education. Prereq: Enrollment in the WDE program or working on a topic relevant to WDE and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded				Apply the concepts of teaching presence, social presence, and cognitive presence to the design and implementation of an online course. Prereq: Jr standing or above. Not open to students with credit for EduPAES 701 or 701D.			
<b>5194</b>	<b>Group Studies: Workforce Development &amp; Education</b>	<b>U G</b>	<b>1 - 3</b>	<b>5784</b>	<b>Student Teaching in Career and Technical Education</b>	<b>U G</b>	<b>12</b>
Group Study on topics related to workforce development and education. Prereq: Jr standing or above, or CED enrollment; and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.				Supervised clinical practice for career and technical education majors in a school setting. Prereq: Major in EHE, or Grad standing; and passage of Business content test; or permission of instructor. Not open to students with credit for EduPAES 784.			
<b>5622</b>	<b>Introduction to Software Applications for Teachers and Trainers</b>	<b>U G</b>	<b>3</b>	<b>6701</b>	<b>Boot Camp for the Beginning Online Instructor</b>	<b>G</b>	<b>1</b>
Foundational understanding and skill development of computer software applications. Prereq: Not open to students with credit for EduPAES 622 or 623.				This course workshop provides the just in time skills needed to begin teaching online and prepares future faculty for first time online teaching assignments. Learners will be able to develop a management plan for teaching online, develop spaces and places for learning, connect with students and design assessments appropriate for online learning environments. This is a self-paced and managed course. Prereq: Not open to students with credit for 5701.			
<b>5623</b>	<b>Advanced Software Applications for Teachers and Trainers</b>	<b>U G</b>	<b>3</b>	<b>7000.01</b>	<b>Contemporary Research in Workforce Development and Education: Career and Technical Education</b>	<b>G</b>	<b>3</b>
Advanced understanding and skill development of computer software applications. Prereq: Not open to students with credit for EduPAES 623 or 632.				This course is designed as an examination of the current research across the workforce development landscape. It will provide the opportunity to explore scholarly work, policy reports, and practitioner-focused reports that support the development of individuals for success in the workforce. It will delve into contemporary issues in WDE with a focus on career and technical education. Repeatable to a maximum of 30 cr hrs.			
<b>5624</b>	<b>Foundations of Workforce Development and Education</b>	<b>U G</b>	<b>3</b>	<b>7289</b>	<b>Practicum in Teaching Adults Online</b>	<b>G</b>	<b>3</b>
Offers economic, social, psychological and educational foundations of the fields in workforce development. Prereq: Not open to students with credit for EduPAES 624.				Course management system and content area. Learners will design and teach a lesson online. Provides an opportunity for students to practice the skills developed in the grad minor. Specialization in teaching in a virtual environment. Prereq: 7701 or EduPAES 7701, and ESWDE 5701 or EduPAES 5701; or ESETec 6282 or EduPL 6282.			
<b>5633</b>	<b>Instructional Strategies for Career Based Intervention Programs</b>	<b>U G</b>	<b>3</b>	<b>7701</b>	<b>Teaching and Learning at a Distance: Foundations of the Virtual Classroom</b>	<b>G</b>	<b>3</b>
Preparation and delivery of lessons, placement and follow-up of students in Career-Based Intervention programs. Prereq: Enrollment in EHE or Grad standing; or permission of instructor. Not open to students with credit for EduPAES 633.				An examination of the socio-cultural, political, economic, and educational trends and issues influencing the development and delivery of distance education. Issues of accessibility, access, affordability, technology, will be discussed.			
<b>5636</b>	<b>School Health Teaching Practices</b>	<b>U G</b>	<b>3</b>	<b>7727</b>	<b>Assuring Quality in Online Course Design: Moving from Face to Face to Online</b>	<b>G</b>	<b>3</b>
Principles and practices for preparing, implementing, and evaluating health instruction. Prereq: Not open to students with credit for EduPAES 636 or 636D.				In this fully online course learners will use the quality matters rubric and supporting documents to inform the design and implementation of instruction specifically for an online teaching/learning environment. The learner will develop and submit for peer review an online course or portion of an online course. Learners will also serve as a peer reviewer using the quality matters standards. Cross-listed in Nursing.			
<b>5649S</b>	<b>Teaching Adults in the Workplace</b>	<b>U G</b>	<b>3</b>	<b>7757</b>	<b>Aspects of Human Resource Development</b>	<b>G</b>	<b>3</b>
Developmental and instructional approaches. Prereq: Jr standing or above. Not open to students with credit for EduPAES 649.				Overview of theories, principles and practices of the human resource development field. Prereq: Not open to students with credit for EduPAES 757.			
<b>5655</b>	<b>Coordination of Work-Based Learning for Career and Technical Education</b>	<b>U G</b>	<b>3</b>	<b>7935.40</b>	<b>Program Planning in Adult Education</b>	<b>G</b>	<b>3</b>
Strategies for the development of work-based learning programs in career and technical education programs. Prereq: Standing in EHE, or Grad standing, or permission of instructor. Not open to students with credit for EduPAES 646.				Examines the political, social and educational and cultural components in planning educational programs for adults. Prereq: Not open to students with credit for EduPAES 934 or 935.			
<b>5656</b>	<b>Foundations of Career and Technical Education Teaching</b>	<b>U G</b>	<b>2</b>	<b>8193</b>	<b>Advanced Individual Studies: Workforce Development &amp; Education</b>	<b>G</b>	<b>1 - 12</b>
A foundational course in career and technical education for previously licensed teachers in other subject areas. Covers lab management, career-technical student organizations, advisory committees, funding, and other specialized topics related to career and technical education. Prereq: Grad standing, or enrollment in EHE major.				Advanced independent research on topics related to workforce development and education. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>5665</b>	<b>Teaching Methods for Career and Technical Education</b>	<b>U G</b>	<b>3</b>				
Instructional concepts for teaching career and technical education, including teaching methods and classroom/lab management. Prereq: Grad standing or enrollment in EHE, or permission of instructor. Not open to students with credit for EduPAES 665.							
<b>5667</b>	<b>Curriculum/Instruction and Assessment in Career and Technical Education</b>	<b>U G</b>	<b>3</b>				
Study of curriculum/instruction and assessment procedures in career and technical education courses and programs. Prereq: Grad standing, or enrollment in EHE, or permission of instructor. Concur: 5189.02. Not open to students with credit for EduPAES 667 or 675.							

**8911 Theoretical and Scholarly Perspectives on Workforce Development and Education** G 3

Provides a framework for examining the theories and concepts in Workforce Development and Education.  
Prereq: Not open to students with credit for EduPAES 911 or 912.

**8932 Adult Learning Theory** G 3

Examination of significant learning theories and their application to adult learning experiences.  
Prereq: Not open to students with credit for EduPAES 932.

**8999 Dissertation/Thesis Research: Workforce Development & Education** G 1 - 3

An individual study course for those graduate students conducting independent research for a thesis or dissertation.  
Prereq: Doctoral standing, and permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions with 999.40. This course is graded S/U.

## Electrical and Computer Engineering

**2020 Introduction to Analog Systems and Circuits** U 3

Circuit theory and applications of passive components and Op amps. Introduction to analog systems using differential equations and Laplace transforms.  
Prereq: Engr 1182.01, 1182.02, 1182.03, 1282.01H, 1282.02H, 1282.03H, 1282.04H, or 1186, 1187 and 1188 concurrent; and Math 1152, 1161.01, 1161.02, 1172, or 1181H; and Physics 1250, 1250H, or 1260; and CPHR 2.00 or above. Not open to students with credit for 2100, 2100.02, 2100.06, 2100.07, 2100.08, 2105, 2106, 2110, 2127, 2137, or 2300.

**2021 Introduction to Analog Systems and Circuits for Transfer Students Lecture** U 2½

Lecture-only component of ECE 2020, for transfer students. Circuit theory and applications of passive components and Op amps. Introduction to analog systems using differential equations and Laplace transforms.  
Prereq: Math 1152 or 1161.01 or 1161.02 or 1172 or 1181H, and Physics 1250, 1250H or 1260, and CSE 1222 or 2221 or Engr 1281.01H or 1281.02H or 1222; and Engr 1182.01 or 1182.02 or 1182.03 or 1282.01H or 1282.02H or 1282.03H, or Engr 1186 and 1187 and concur: 1188 concurrent, or 1187 and 1188 and concur: 1186; and CPHR 2.00 or above. Not open to students with credit for 2020, 2100, 2100.02, 2100.06, 2105, 2106, 2110, or 2300.

**2027 Introduction to Analog Systems and Circuits Lab for Transfer Students** U ½

Laboratory-only component of ECE 2020, for transfer students. Laboratory practice with circuit theory, analog systems, and applications of passive components and Op amps.  
Prereq: 2021, and CPHR 2.00 or above. Not open to students with credit for 2020, 2100, 2100.02, 2100.07, 2100.08, 2127, 2137, 209, 292, or 294.03.

**2050 Introduction to Discrete Time Signals & Systems** U 3

Introduction to sampled time signals and linear time invariant sampled time systems.  
Prereq: 2000, or 2060, or 2061 and 2067. Prereq or concur: Math 2174 or 2568. Not open to students with credit for 2100, 2100.01, 2100.04, 2104, or 2110.

**2051 Introduction to Discrete Time Signals & Systems Lecture** U 2½

Introduction to sampled time signals and linear time invariant sampled time systems. Lecture only.  
Prereq: 2000, or 2060, or 2061 and 2067. Prereq or concur: Math 2174 or 2568. Not open to students with credit for ECE 2100, 2100.01, 2100.04, 2104, 2110, or 2050.

**2057 Introduction to Discrete Time Signals & Systems Laboratory** U ½

Introduction to sampled time signals and linear time invariant sampled time systems. Lab only.  
Prereq or concur: 2051. Not open to students with credit for 2100, 2100.01, 2100.04, 2104, 2110, or 2050.

**2060 Introduction to Digital Logic** U 3

Introduction to the theory and practice of combinational and clocked sequential networks.  
Prereq: CSE 1222, 2221, Engr 1222, 1281.01H, or 1281.02H; and Math 1152, 1161.01, 1161.02, 1172, or 1181H; and Physics 1250, 1250H, or 1260; and Engr 1182.01, 1182.02, 1182.03, 1282.01H, 1282.02H, 1282.03H, 1282.04H, or 1186, 1187, and 1188 concurrent, or 1187, 1188, and 1186 concurrent, or major in CIS or CIS-PRE; and CPHR 2.00 or above. Not open to students with credit for 2000, 2000.02, 2000.07, 2001, 2010, or 2017.

**2061 Introduction to Digital Logic for Transfer Students Lecture** U 2½

Lecture-only component of ECE 2060, for transfer students. Introduction to the theory and practice of combinational and clocked sequential networks.  
Prereq: Math 1152 or 1161.01 or 1161.02 or 1172 or 1181H, and Physics 1250, 1250H or 1260, and CSE 1222 or 2221 or Engr 1281.01H or 1281.02H or 1222; and Engr 1182.01 or 1182.02 or 1182.03 or 1282.01H or 1282.02H or 1282.03H, or Engr 1186 and 1187 and concur: 1188 concurrent, or 1187 and 1188 and concur: 1186, or major in CIS or CIS-PRE; and CPHR 2.00 or above. Not open to students with credit for 2000, 2000.02, 2001, 2010, or 2060.

**2067 Introduction to Digital Logic Lab for Transfer Students** U ½

Laboratory-only component of ECE 2060 for transfer students. Laboratory practice with and application of the theory of combinational and clocked sequential networks.  
Prereq: 2061, and CPHR 2.00 or above. Not open to students with credit for 2000, 2000.02, 2000.07, 2017, 2060, 270, 290, or 294.01.

**2193 Individual Studies in Electrical and Computer Engineering** U 0 - 10

Individual studies project.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions.  
This course is graded S/U.

**2300 Electrical Circuits and Electronic Devices** U 3

Introduction to circuit analysis; circuit analysis concepts and mechanical systems analogies; theory and applications of electronic devices; operational amplifiers; electrical instruments and measurements.  
Prereq: Physics 1251 or 1261, and Math 1172 or 1544 or 2153 or 2162.01 or 2162.02 or 2182H or 4182H, and CPHR 2.0 or above, and enrollment in College of Engineering. Not open to students majoring in ECE.

**2301 Electrical Circuits and Electronic Devices Lecture** U 2½

Introduction to circuit analysis; circuit analysis concepts and mechanical systems analogies; theory and applications of electronic devices; operational amplifiers; electrical instruments and measurements. Lecture portion only.  
Prereq: Physics 1251 or 1261, and Math 1172 or 1544 or 2153 or 2162.01 or 2162.02 or 2182H or 4182H, and CPHR 2.0 or above, and enrollment in College of Engineering. Not open to students with credit for 2300, or students majoring in ECE.

**2307 Electrical Circuits and Electronic Devices Laboratory** U ½

Introduction to circuit analysis; circuit analysis concepts and mechanical systems analogies; applications of electronic devices; operational amplifiers; electrical instruments and measurements. Lab only.  
Prereq or concur: 2301. Not open to students with credit for 2300, or students majoring in ECE.

**2560 Introduction to Microcontroller-Based Systems** U 2

Hardware and software organization of a typical microcontroller; machine language programming, interfacing peripheral devices, and input-output programming; real-time computer applications.  
Prereq: 2000, 2001, 2060, or 2061 and prereq or concur: 2000.07 or 2017; and CSE 1221, 1222, Engr 1281.01H, 1281.02H, or 1222, and enrollment in ECE, CSE, or EngPhysics major; or prereq or concur: 2010 or 2067, and permission of department. Not open to students with credit for CSE 2421.

**2998.01 Undergraduate Research** U ½ - 3

Supervised undergraduate research in various topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.

**2998.02 Undergraduate Research** U ½ - 3

Supervised undergraduate research in various topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**3010 Introduction to Radio Frequency and Optical Engineering** U 3

Waves and pulses on transmission lines; charges, fields, and potentials; inductance and capacitance; Faraday's law; Maxwell's Equations; plane wave propagation, polarization, reflection, and transmission.  
Prereq: 2020, 2021, 2100, 2100.02, 2100.06, or 2105; and Physics 1251 or 1261, or both 1240 and 1241; and Math 2415 or 2174; and enrollment in ECE or EngPhysics major; or prereq or concur: 2010 or 2061, and permission of department. Not open to students with credit for 3010.01 or 3010.02.

**3020 Introduction to Electronics** U 3

Electronics: diode and transistor models for amplifiers, switches, and logic gates. Multiple transistor circuit analysis, op amps, and electronic systems.  
Prereq: 2100 or 2020; or 2021 or 2106, and 2027 prereq or concur; and ECE or EngPhys major, or 2110 prereq or concur and permission of department.

**3027 Electronics Laboratory** U 1

Electronic amplification, signal processing, timing, and power regulation circuits. Experiments with electronics evaluation modules and use of an analog system lab kit for electronics testing.  
Prereq: 3020; and ECE or EngPhysics major.

**3030 Semiconductor Electronic Devices** U 3

Semiconductor materials and devices. Crystals; bandstructure; charge carrier statistics; excess carriers, transport; PN junction; Schottky barrier; bipolar and field-effect transistors; optoelectronic devices; nanoscale devices.  
Prereq: 2020, 2021, or 2100; and Physics 1251, 1261, or both 1240 and 1241; and Chem 1210, 1220, or 1250; and enrollment in ECE, MSE, or EngPhysics major. Prereq or concur: Math 2415 or 2174.

**3040 Sustainable Energy and Power Systems I** U 3

Introduction to electrical energy systems: history, current trends, renewable and non-renewable sources, rotating machines and their operation, and smart grid initiatives.  
Prereq: 2100, 2100.02, 2105, 2020, 2021, 205, 292, or 294 (Spring 2011), and enrollment in ECE or EngPhysics major. Not open to students with credit for 341.

**3047 Sustainable Energy and Energy Conversion Lab** U 1

Laboratory introducing basics of energy conversion processes for electrical energy supply systems utilizing conventional rotating machines and hardware-in-the-loop simulation system for sustainable energy systems.  
Prereq: 3040 (341), and enrollment in ECE or EngPhysics major. Not open to students with credit for 447.

## 170 Electrical and Computer Engineering

<b>3050</b>	<b>Signals and Systems</b>	<b>U</b>	<b>3</b>
Linear systems and models in continuous and discrete time; convolution; Fourier series and transform; frequency response; Laplace transform; z-transform; applications. Prereq: 2020, 2050, and 2060; or 2100; and Math 2568 (568) or 571; and prereq or concur Math 2415; and enrollment in ECE or EngPhysics major. Not open to students with credit for 352.			
<b>3080</b>	<b>Ethics and Professionalism</b>	<b>U</b>	<b>1</b>
Professional responsibilities; IEEE code of ethics; social justice; engineering as social experimentation; safety and risk; professional issues in organizations; case studies; global awareness. Prereq: Jr or Sr standing, and enrollment in ECE major. Not open to students with credit for 481. This course is graded S/U.			
<b>3090</b>	<b>Technical Writing and Presentations</b>	<b>U</b>	<b>1</b>
Technical writing and communications skills. Prereq: Credit for a first writing course, and enrollment in ECE major.			
<b>3551</b>	<b>Introduction to Feedback Control Systems</b>	<b>U</b>	<b>3</b>
Provides fundamental concepts in feedback control systems design and analysis. Prereq: 3050 (352). Not open to students with credit for 551.			
<b>3557</b>	<b>Control Systems Laboratory</b>	<b>U</b>	<b>1</b>
Utilization of real-world plants for computer control; use of a commercially available software package (Matlab) for computer-aided analysis and design. Prereq or concur: 3551 (551), and enrollment in ECE or EngPhysics major. Not open to students with credit for 557.			
<b>3561</b>	<b>Advanced Digital Design</b>	<b>U</b>	<b>3</b>
Design and analysis of sequential circuits; digital circuit design using building blocks, programmable logic devices; design of basic computer components such as arithmetic logic units. Prereq: 2000, 2060, 2061, 2010, 2000.02, 290, 294 (Autumn 2010) or 206 and 261. Prereq or concur: 3020 (323), and enrollment in ECE, EngPhys, or CSE majors; or prereq or concur 2010 and permission of department. Not open to students with credit for 561.			
<b>3567</b>	<b>Microcontroller Lab</b>	<b>U</b>	<b>1</b>
Laboratory in which a microcontroller is used to interface real-world hardware to make a functioning system. Prereq: 2560 or CSE 2421, and enrollment in ECE, CSE, or EngPhysics major. Not open to students with credit for 3567.01.			
<b>3900</b>	<b>Capstone Design I</b>	<b>U</b>	<b>1</b>
Fundamentals of the engineering design process. Design principles and methodology. Project management during design. Prereq: Sr standing and enrollment in the ECE major. Prereq or concur: 3090. Not open to students with credit for 4900, 4900H, 4901, Engr 4901, 4903, 5901.01, or 5901.02H.			
<b>3905</b>	<b>Capstone Design I</b>	<b>U</b>	<b>3</b>
Fundamentals of the engineering design process. Application of design principles and methodology to conceptual and detailed technical design. Project management during design. Prereq: Option 1: Prereq or concur: 3080 or Philos 1332, and ECE 2560, 3010, 3020, 3027, 3030, 3040, 3050, and 3090, and Sr standing, and enrollment in Electrical Engineering Program of Study (EES subplan) of the ECE major. Option 2: Prereq or concur: ECE 2050 or 2100, and 3080 or Philos 1332, and ECE 3020, 3027, 3090, 3561, 3567, CSE 2231, and 2451, and Sr standing, and enrollment in Computer Engineering Program of Study (CES subplan). Not open to students with credit for 3900, 4900, 4900H, 4901, Engr 5901.01, 5901.02H, 5902.01, or 5902.02H. This course is progress graded.			
<b>4021</b>	<b>Analog Integrated Circuits I</b>	<b>U</b>	<b>3</b>
Fundamentals of analog integrated circuits. CMOS transistors and diodes large-signal and small-signal operation and modeling. On-chip passive components operation and modeling. Simple and advanced current mirrors, single-ended and differential CMOS amplifiers, CMOS OTAs and Op-Amps. Integrated Circuits Fabrication, Packaging, and Testing. Prereq: 3020. Not open to students with credit for 5021.			
<b>4193</b>	<b>Individual Studies in Electrical and Computer Engineering</b>	<b>U</b>	<b>0 - 12</b>
Individual studies project. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			
<b>4567</b>	<b>Design of Mobile Internet-of-Things</b>	<b>U</b>	<b>4</b>
This course focuses on theoretical and practical insights into design of Internet of Things architectures and mobile platforms. Concepts covered in this course include general IoT architectures, sensor, processing, and communication resources, device and cloud connectivity, mobility support. Practical aspects will be studied with lab assignments and the semester-long group projects. Prereq: 2560, 3020, and 3027.			

<b>4900</b>	<b>Capstone Design II</b>	<b>U</b>	<b>3</b>
Application of design principles and methodology to conceptual and detailed technical design, implementation, and testing of a capstone project. Prereq: Option 1: 2560, 3010, 3020, 3027, 3030, 3040, 3050, 3090, and 3900, and Sr standing, and enrollment in Electrical Engineering Program of Study (EES subplan) of the ECE major. Prereq or concur: 3080 or Philos 1332. Option 2: 2050 or 2100; 3020, 3027, 3090, 3561, 3567, 3900, CSE 2231, and 2451, and Sr standing, and enrollment in Computer Engineering Program of Study (CES subplan). Prereq or concur: 3080 or Philos 1332, and ECE 5362. Not open to students with credit for 4900H, 4901, or Engr 4903 or 5902.01.			
<b>4900H</b>	<b>Design II with Honors Thesis Project</b>	<b>U</b>	<b>3</b>
Application of design principles and methodology to conceptual and detailed technical design, implementation and testing, culminating in a capstone design project. Prereq: Honors standing, and permission of department, and: Option 1: 2560, 3010, 3020, 3027, 3030, 3040, 3050, 3090, 3900, and Sr standing, and enrollment in Electrical Engineering Program of Study (EES subplan) of the ECE major. Prereq or concur: 3080 or Philos 1332. Option 2: 2050 or 2100; 3020, 3027, 3090, 3561, 3567, 3900, CSE 2231, and 2451, and Sr standing, and enrollment in Computer Engineering Program of Study (CES subplan). Prereq or concur: 3080 or Philos 1332, and ECE 5362. Not open to students with credit for 4900, 4901, Engr 4903, or 5902.01.			
<b>4901</b>	<b>Capstone Design II Special</b>	<b>U</b>	<b>3</b>
Application of design principles and methodology to conceptual and detailed technical design, implementation, and testing of a capstone design project. Teams of at least three arrange special projects with a faculty member. Prereq: Option 1: 2560, 3010, 3020, 3027, 3030, 3040, 3050, 3090, and 3900, and Sr standing, and enrollment in Electrical Engineering Program of Study (EES subplan) of the ECE major. Prereq or concur: 3080 or Philos 1332. Option 2: 2050 or 2100; 3020, 3027, 3090, 3561, 3567, 3900, CSE 2231, and 2451, and Sr standing, and enrollment in Computer Engineering Program of Study (CES subplan). Prereq or concur: 3080 or Philos 1332, and 5362. Not open to students with credit for 4900H, 4900, or Engr 4903 or 5902.01.			
<b>4905</b>	<b>Capstone Design II</b>	<b>U</b>	<b>3</b>
Application of project management, design principles and methodology to conceptual and detailed technical design, implementation, and testing of a capstone project. Prereq: 3905. Not open to students with credit for 4900, 4900H, 4901, Engr 5901.01, 5901.02H, 5902.01, or 5902.02H.			
<b>4905H</b>	<b>Capstone Design II with Honors Thesis</b>	<b>U</b>	<b>3</b>
Application of design principles and methodology to conceptual and detailed technical design, implementation and testing, culminating in a capstone design project. Prereq: Honors standing, 3905, and permission of department. Not open to students with credit for 4900, 4900H, 4901, Engr 5902.01 or 5902.01H.			
<b>4998.01</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>½ - 3</b>
Supervised undergraduate research in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>4998.01H</b>	<b>Undergraduate Honors Research</b>	<b>U</b>	<b>½ - 3</b>
Supervised research in various topics for undergraduate honors students. Prereq: Honors standing; or GPA 3.4 or above, and permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>4998.02</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>½ - 3</b>
Supervised undergraduate research in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions. This course is graded S/U.			
<b>4999.01</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>½ - 3</b>
Undergraduate Thesis (Distinction) research on topics in Electrical & Computer Engineering. Prereq: GPA 3.0 or above, and enrollment in ECE major, and approved Thesis (Distinction) project. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>4999.01H</b>	<b>Undergraduate Honors Thesis Research</b>	<b>U</b>	<b>½ - 3</b>
Undergraduate Honors Thesis (Distinction) research on topics in Electrical & Computer Engineering. Prereq: Honors standing, or GPA 3.4 or above; and enrollment in ECE major; and approved Honors Thesis (Distinction) project. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>5000</b>	<b>Introduction to Analog and Digital Communications</b>	<b>U G</b>	<b>3</b>
Communications channel modeling, analog communication schemes, digital communication schemes, error rate analysis, and error control coding. Prereq: 3050, and Stat 3470 or Physics 3700; or Grad standing.			
<b>5007</b>	<b>Communications Laboratory</b>	<b>U G</b>	<b>½</b>
A laboratory in digital data communication implementing a software-defined modem: quadrature modulation; phase-shift keyed modulation; inter-symbol interference; timing and frequency recovery. Prereq or concur: 5000 (501), and enrollment in ECE or EngPhysics major; or Grad standing in ECE. Not open to students with credit for 4007 or 508.			
<b>5010</b>	<b>Wireless Propagation and Remote Sensing</b>	<b>U G</b>	<b>3</b>
Practical methods for predicting tropospheric, groundwave, and ionospheric propagation, including refraction, reflection, and extinction effects. Study of remote sensing systems and their applications. Prereq: 3010, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			

<b>5011</b>	<b>Antennas</b>	<b>U G</b>	<b>3</b>
Electromagnetic radiation; fundamental antenna parameters; dipole, loops, patches, broadband and other antennas; array theory; ground plane effects; horn and reflector antennas; pattern synthesis; antenna measurements. Prereq: 3010 (312), or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 711.			
<b>5012</b>	<b>Integrated Optics</b>	<b>U G</b>	<b>3</b>
Fundamentals of planar lightwave circuits and guided wave devices; laser light in anisotropic media; electrooptic and nonlinear optical effects; concepts in telecommunications, RF photonics, nanobiotechnology. Prereq: 3010, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5013</b>	<b>Introduction to Radar Systems</b>	<b>U G</b>	<b>3</b>
Introduces the fundamentals of radar such as the main concepts and techniques used in modern radar systems. The class is a survey course exposing students to a wide range of radar applications and design issues. Prereq: 3050, and 3010 or 3010.01, and Stat 3470; or Grad standing in Engr. Not open to students with credit for 5194.01.			
<b>5017</b>	<b>Microwave Engineering</b>	<b>U G</b>	<b>4</b>
Transmission line theory; multiconductor; S-parameters; transformers, couplers, filters, resonators, circulators; electromagnetic interference and compatibility; computer-aided design; microstrip realization and testing with a network analyzer. Prereq: 3010, and enrollment in ECE major; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5020</b>	<b>Mixed Signal VLSI</b>	<b>U G</b>	<b>3</b>
Design and circuit analysis of basic VLSI structures such as registers, cell libraries, digital and analog I/O. Physical layout, timing analysis, PLLs, design tools. Prereq: 3020, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5021</b>	<b>Analog Integrated Circuits II</b>	<b>U G</b>	<b>3</b>
Advanced analog integrated circuits. Linear feedback networks design and stability analysis, multi-stage CMOS op-amp design and compensation, fully-differential op-amps and common-mode feedback networks, comparators, transconductors, bandgaps, sample and hold circuits, switched-capacitor circuits, noise analysis of CMOS circuits. Prereq: 4021; or Grad standing in Engineering, and permission of instructor.			
<b>5022</b>	<b>Radio Frequency Integrated Circuits</b>	<b>U G</b>	<b>3</b>
Modulation, wireless standards, transceiver architecture, transistor models, passive component models; LNA, VCO, PLL, Mixers, integrated PA, RFIC layout. Prereq or concur: 4021 or 5021, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5023</b>	<b>Introduction to Data Converters and Phase-Locked Loops</b>	<b>U G</b>	<b>3</b>
This course focuses on fundamentals of data converters and timing circuits, including discrete-time analog/mixed signal analysis and signal conditioning for asynchronous and synchronous computing. The topics include analog switches, sampling circuits, switched-capacitor amplifiers and filters, ADCs, DACs, PLLs, DLLs and discrete-time neural networks. Prereq: 4021, or Grad standing in Engr or Physics.			
<b>5025</b>	<b>Power Electronics: Devices, Circuits, and Applications</b>	<b>U G</b>	<b>3</b>
Provides an introduction to power electronic conversion principles. Analytical techniques will be developed through the study of widely used converter circuits. Prereq: 3020 (323), or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 624, 724, or 844.			
<b>5027</b>	<b>Microwave Electronics</b>	<b>U G</b>	<b>4</b>
Design principles of microwave transistor amplifiers and oscillators; low-noise, power and broadband amplifiers; linearization; computer-aided design; microstrip realizations and testing in the laboratory. Prereq: 3020 (323), and enrollment in ECE major; or Grad standing in Engineering, Biological Science, or Math and Physical Sciences. Not open to students with credit for 723.			
<b>5031</b>	<b>Semiconductor Process Technology</b>	<b>U G</b>	<b>3</b>
Discrete and integrated circuit device design, silicon VLSI processing technologies, III-V compound semiconductor device fabrication technologies; epitaxy, doping, bandgap engineering; and device measurements and failure mechanisms. Prereq: 3030, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5033</b>	<b>Surfaces and Interfaces of Electronic Materials</b>	<b>U G</b>	<b>3</b>
Provides the fundamental and practical basis for designing, processing, and characterizing the interfaces controlling the next generations of microelectronic and optoelectronic device structures. Prereq: 3030, and Physics 1250 or 1250H; or Grad standing in Engineering, Biological Science, or Math and Physical Sciences.			

<b>5037</b>	<b>Solid State Electronics and Photonics Laboratory</b>	<b>U G</b>	<b>4</b>
Introduction to laboratory techniques for semiconductor device fabrication including photolithography, oxidation, diffusion, chemical processes, reactive ion etching, and metallization; fabrication and measurements of visible light emitting diodes (LED) and GaN High Electron Mobility Transistor (HEMT). Prereq or concur: 3030, and acceptance in ECE, MSE or EngPhysics major; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5041</b>	<b>Electric Machines</b>	<b>U G</b>	<b>3</b>
Principles of electromechanical energy conversion; basic structures of electric machines; steady state models and performance analysis; advanced topics on AC machine control. Prereq: 3020 (323) and 3040 (341), or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 743.			
<b>5042</b>	<b>Power Systems</b>	<b>U G</b>	<b>3</b>
A power system analysis course presenting power systems loads, modeling of transformers and power system model for voltage calculation and faults. Prereq: 3040, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			
<b>5043</b>	<b>Power Systems - Analysis and Operation</b>	<b>U G</b>	<b>3</b>
Power systems analysis and operations, including steady-state analysis, state estimation, and economic operation. Prereq: 3040, Sr standing, and ECE major; or Sr standing and ISE major; and Math 2568; or Grad standing in engineering or biological sciences or math and physical sciences. Cross-listed in ISE.			
<b>5047</b>	<b>High Voltage Engineering and Laboratory</b>	<b>U G</b>	<b>3</b>
Dielectric strength and breakdown of gases, liquids, and solids, electric field design problems in power system equipment; laboratory study of high voltage insulation. Prereq: 3040 (341), and enrollment in ECE major; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 747.			
<b>5050</b>	<b>Humanitarian Engineering</b>	<b>U G</b>	<b>3</b>
Poverty and underdevelopment. Goal of social justice. Development strategies. Engineering for the poor, weak, and developing communities. Humanitarianism in the university and engineering enterprise. Prereq: 1182 or 1282; or Grad standing; or permission of instructor. Not open to students with credit for Engr 5050.			
<b>5070</b>	<b>Neuroengineering and Neuroprosthetics</b>	<b>U G</b>	<b>3</b>
An overview of the broad field of Neuroengineering for graduate and senior undergraduate students with engineering or neuroscience backgrounds. Focusing on neural interfaces and prostheses, this course covers from basic neurophysiology and computational neuronal models to advanced neural interfaces and prostheses currently being actively developed in the field. Prereq: 3050 or BiomedE 3703 or Neurosc 3010, or Grad standing in Engineering or Neurosc. Not open to students with credit for 5194.03 or Neurosc 5070. Cross-listed in Neurosc.			
<b>5078</b>	<b>Empowering the Entrepreneurial Electrical and Computer Engineer</b>	<b>U G</b>	<b>3</b>
This course will teach entrepreneurial minded engineers the process of value creation from their ECE relevant technology or inventions. Topics covered will include self-assessment as an entrepreneur and innovator, analysis and validation of new venture opportunities, intellectual property creation and assessment new venture planning and project management, leadership and team building. Prereq: 3010, 3020, 3030, 3040, or 3050; or Grad standing in Engr. Not open to students with credit for 5194.13.			
<b>5101</b>	<b>Introduction to Wireless Networking</b>	<b>U G</b>	<b>3</b>
Fundamental concepts in cellular design, Wireless-LANs, MANETs, and sensor networks will be explored. Specific topics will include propagation, fading, cellular-design, power-management, routing, scheduling, and control. Prereq or concur: 3561 (561) or CSE 3461 (677), or Grad standing in Engineering or Math and Physical Sciences. Not open to students with credit for CSE 5463. Cross-listed in CSE 5463.			
<b>5120</b>	<b>Introduction to Integrated Circuits Test and Measurement</b>	<b>U G</b>	<b>3</b>
Parametric testing techniques for analog, digital, mixed and RF ICs, DSP-based testing; noise effects on accuracy; Design-for-Test and Built-in-Self Tests. Prereq: 3020, or 323 and 351, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 625, 694 (Spring 2009), or 694.04.			
<b>5127</b>	<b>Power Electronics Lab</b>	<b>U G</b>	<b>1</b>
Laboratory introducing basic circuits of power electronics, and simulation and control hardware and software for various power and energy applications. Prereq: 3040 (341) and enrollment in ECE major, or Grad standing in Engineering. Not open to students with credit for 628 or 647.			
<b>5131</b>	<b>Lasers</b>	<b>U G</b>	<b>3</b>
Atomic interaction with radiation, cavities with gain, Gaussian beams, light-emitting diodes, and semiconductor lasers. Prereq: 3010 and 3030, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.			

## 172 Electrical and Computer Engineering

**5132 Photonics** U G 3

Fiber optics, optical systems and devices, optical detection, photonic band gaps, holography, and optical data storage.  
Prereq: 3010, 3010.01, or 3010.02, and 3030 or 3030.01; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 5132.01.

**5200 Introduction to Digital Signal Processing** U G 3

Sampling and reconstruction; discrete-time rate conversion; processing of discrete-time signals; design of discrete-time filters, selected topics in adaptive and/or multidimensional signal processing.  
Prereq: 3050, and Stat 3470 or Math 4530; or Grad standing.

**5206 Medical Imaging and Processing** U G 3

Introduction to medical imaging techniques (CT, MRI, PET, ultrasound), including data collection, image reconstruction, physics of tissue interactions, and digital processing of medical images.  
Prereq: 3050 (352). Prereq or concur: 3090 or 582, or Grad standing in ECE, BiomedE, or Biophys. Not open to students with credit for 706.

**5207 Real-Time Digital Signal Processing Laboratory** U G ½

Real-time signal processing of acoustic signals and video images; finite impulse response filters; adaptive filtering; array processing; fast Fourier transform.  
Prereq or concur: 5200, and enrollment in ECE major or Grad standing in ECE. Not open to students with credit for 4207 or 609.

**5227 Fundamentals of Power Management Integrated Circuits for VLSI Systems** U G 4

Theory, design and applications of integrated power management integrated circuits in VLSI systems. This includes: system and circuit architectures, performance metrics, practical implementations, design considerations in VLSI systems in advanced CMOS processes, and design techniques for integrated power regulators and battery chargers. Background in basic analog design is strongly recommended.  
Prereq: 4021, or Grad standing in Engineering or Physics.

**5237 Photovoltaics Laboratory** U G 4

Introduction to laboratory techniques for processing and fabrication of inorganic and organic solar cells, and photovoltaic testing and measurement techniques to characterize solar cells.  
Prereq: 3030 or MatScEn 3271, and enrollment in ECE or MatScEn major; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Cross-listed in MatScEn.

**5244 Si and Wide Band Gap Power Devices** U G 3

Basic design and operation of Si and Wide Band Gap (WBG: SiC, GaN and ultra wide band gap semiconductors) power devices and the applications of commercial devices in power electronics applications. Trade-offs between various devices. Static and dynamic operation. Comparison of Si and SiC devices and design differences.  
Prereq: 3030, or Grad standing in Engr or Physics. Not open to students with credit for 5194.07 or 5234.

**5307 Introduction to Machine Learning for ECE** U G 4

Introduction to Machine Learning. Coverage includes linear regression, linear classification, model and feature selection, neural networks, clustering, and principle components analysis. Python will be used for implementation examples.  
Prereq: CSE 1222 or Engr 1281.xx, and Math 2568 and Stat 3470, and enrollment in ECE major; or Grad standing. Not open to students with credit for 4194.02 (Sp19, Machine Learning), 4300, 5300, or MechEng 5194 (Au19, Applied ML for MAE).

**5362 Computer Architecture and Design** U G 3

Design of general purpose digital computers including arithmetic and control units, input/output, and memory subsystems.  
Prereq: 2560 and 3561, and undergraduate enrollment in ECE, CSE, or EngPhysics major; or Grad standing in Engineering. Not open to students with credit for CSE 3421.

**5400 Instrumentation, Signals, and Control in Transportation Applications** U G 3

Interdisciplinary course bringing together electrical engineering tools and transportation applications. Students gain valuable experience working in teams while learning traffic flow, surveillance and control.  
Prereq: 2020 and 2050, and Math 2415; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for CivilEn 4750 or 6750. Cross-listed in CivilEn 5750.

**5460 Image Processing** U G 3

Fundamentals and research directions in image processing: cameras, geometry, calibration, 2D and 3D image reconstruction, stereo, structure from motion, Radiometry, filtering, motion estimation, and applications.  
Prereq: 5200 (600), and Stat 3470 (427) or Math 530; or Grad standing in Engineering, Biological Sciences, Statistics, Bioinformatics, or Math and Physical Sciences. Not open to students with credit for 707.

**5462 HDL Design and Verification** U G 3

The detailed design and verification of major components of a computer architecture using a standard hardware description language (HDL).  
Prereq: 5362, or 561 and 662, or CSE 675.01 or equiv, or Grad standing in Engineering. Not open to students with credit for 762 or 764.

**5463 Introduction to Real Time Robotics Systems** U G 3

Components of a robot system, robot forward and reverse kinematics; robot dynamics; robot force generation, robot trajectory generation.  
Prereq: Math 2177 or 2174, or 2415 and 2568; and Physics 1250, 1250H, 1260, or 2300; and CSE 1221, 1222, Engr 1181, 1281.01H, 1281.02H, 1221, or 1222; or Grad standing in Engr; or permission of instructor. Not open to students with credit for MechEng 5463 or 7752. Cross-listed in MechEng.

**5465 Advanced Microcomputers** U G 3

An investigation of current microcomputer structures with emphasis on hardware implementation of I/O, direct memory access, interrupts, memory, and microprogramming.  
Prereq: 5362, or 662 and 694A, or Grad standing in Engineering. Not open to students with credit for 765.

**5466 Embedded Computer Systems** U G 3

This course introduces the design principles, analysis methods and case studies of microprocessor-based and time-critical embedded systems, such as sensor and actuator networks, multimedia devices, mobile phones, and avionics. Topics include real-time operating systems, processor scheduling, performance control, resource management, power-aware design, energy optimization, etc.  
Prereq: 5362, or Grad standing in Engr. Not open to students with credit for 8194.03.

**5510 Introduction to Computational Electromagnetics** U G 3

Numerical methods for solving maxwell equations both static and electrodynamics, introduction to finite difference, finite element and integral equation methods, and applied linear algebra.  
Prereq: 3010; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 715 or 813.

**5530 Fundamentals of Semiconductors for Microelectronics and Photonics** U G 3

Crystal structure, semiconductor energy band structure, electron transport and carrier recombination, heterostructures, and optical and dielectric properties.  
Prereq: 3030 (432), or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 730.

**5550 Computational Humanitarianism** U G 3

Computational models of individual and group poverty and underdevelopment; computational social justice; assessing social impact of technology; sensitivity analysis for technology prioritization and design; feedback control for computer automation of helping to meet social justice objectives; social agreement, choice, and allocation.  
Prereq: Jr, Sr or Grad standing in College of Engineering; or permission of instructor. Not open to students with credit for 5194.06.

**5551 State-Space Control Systems** U G 3

Discrete-time state variable representations; pole placement via state-feedback; introduction to realization theory; observer design; introduction to Kalman filtering; linear quadratic regulator theory.  
Prereq: 3050 and Stat 3470; or Grad standing.

**5553 Autonomy in Vehicles** U G 3

Autonomy in the context of modern vehicles; cruise control, anti-lock brake systems (ABS), steering control/lane keeping; introduction to automated highway systems (AHS).  
Prereq: 3551, 5551, or 551, or Grad standing in Engineering. Not open to students with credit for 753.02.

**5554 Powertrain Control Systems** U G 3

Application of digital control system theory, from viewpoints of input-output and state variable representations, to realistic problems in automotive powertrain systems.  
Prereq: 3551 or 5551, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences.

**5555 Securing Autonomous Systems** U G 3

The course covers different security measures for safeguarding against cyberattacks, detecting cyberattacks, and mitigating the effects of cyberattacks on autonomous control systems.  
Prereq: 3050; or Grad standing in Engineering, Math, or Statistics.

**5560 Advanced Hardware Architecture Design Techniques** U G 3

This course introduces highly-practical methodologies and techniques that can be broadly used to improve the efficiency and achieve speed-area-power tradeoffs in the design of application-specific hardware implementation architectures for various algorithms. Efficient implementation architectures of commonly used arithmetic and digital signal processing functional blocks will also be discussed.  
Prereq: 2050, and prereq or concur: 3561 or 3050; or Grad standing in Engr; or permission of instructor. Not open to students with credit for 5194.08.

**5561 Introduction to Cybersecurity** U G 3

Introduction to cybersecurity. Technical fundamentals of data, software, component, network, and system security. Cybersecurity from an organizational and societal view point, including human factors.  
Prereq: Jr, Sr, or Grad standing, or permission of instructor. Not open to students with credit for CSE 5471. Cross-listed in CSE 5471.

## Electrical and Computer Engineering 173

<b>5567.01</b>	<b>Offensive Security</b>	<b>U G</b>	<b>3</b>
This course will give students an overview of existing offensive computing techniques, which include well known attacks that break confidentiality, integrity and availability of computing resources. Attacks targeting on human weaknesses without taking special care to security will also be discussed. Prereq: CSE 2431, 5431, or Grad standing. Not open to students with credit for CSE 5477.01. Cross-listed in CSE 5477.01.			
<b>5567.02</b>	<b>Reverse Engineering and Software Security</b>	<b>U G</b>	<b>3</b>
This course will give students an overview of cutting edge reverse engineering techniques as well as software security and defense practices. Programming experience in C required. Prereq: CSE 1222, or permission of instructor. Prereq or concur: ECE 5561. Not open to students with credit for CSE 5547.02. Cross-listed in CSE 5547.02.			
<b>5570</b>	<b>Antiracist Technology</b>	<b>U G</b>	<b>4</b>
Discrimination against racial and ethnic minorities is prevalent, systemic, and global. Racism and racial justice principles are outlined. Case studies on racist technologies, those that promote or sustain racism, are studied. Engineering design methodology is used to modify or create several new technologies that help the antiracist oppose racism. Prereq: Engr 1182, 1282, Grad standing in Engr, or permission of instructor.			
<b>5759</b>	<b>Optimization for Static and Dynamic Systems</b>	<b>U G</b>	<b>3</b>
Numerical optimization techniques as applied to selected electrical engineering application areas. Prereq: 3050, or Grad standing in Engineering or Math and Physical Sciences.			
<b>5832</b>	<b>Photovoltaics and Energy Conversion</b>	<b>U G</b>	<b>3</b>
Photovoltaic materials and devices; solar cell device physics; solar cell simulation, design and operation; silicon cell technologies; thin film technologies; III-V technologies; nanostructures; terrestrial and space applications. Prereq: 3030, or Grad standing in Engr or Physics.			
<b>5833</b>	<b>Organic and Printed Flexible Electronics</b>	<b>U G</b>	<b>3</b>
Conducting organic small molecules and polymers (structural, optical and electrical properties); printable metal-oxide semiconductors; Printing techniques, organic light emitting diodes; transport and carrier injection; organic transistors; organic lasers. Prereq: 3030, or permission of instructor for non-ECE majors; or Grad standing in engineering, biological sciences, or math and physical sciences. Not open to students with credit for 7833 or 5194.04.			
<b>6001</b>	<b>Probability and Random Variables</b>	<b>G</b>	<b>3</b>
Probability, random variables, and random vectors for analysis and research in electrical engineering. Distribution functions, characteristic functions, functions of random variables and vectors, Markov chains. Prereq: Grad standing. Not open to students with credit for 804 or 805.			
<b>6010</b>	<b>Electromagnetic Field Theory I</b>	<b>G</b>	<b>3</b>
Maxwell's Equations; plane waves; field representations and solutions in unbounded space; waveguides and cavities; elements of Green's Functions; cylindrical and spherical waves; electromagnetic theorems. Prereq: 5010 (713), and 5011 or 613; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 719, 810, or 811.			
<b>6011</b>	<b>Bioelectromagnetics</b>	<b>G</b>	<b>3</b>
This course provides an introduction to the interdisciplinary field of bioelectromagnetics for graduate students. Lectures cover the interaction of electromagnetic fields with biological tissues across the frequency spectrum; bioelectromagnetic dosimetry; and various applications of bioelectromagnetics (medical, consumer, and more). Prereq: Grad standing in Engineering, Biological Sciences, Mathematical and Physical Sciences; or permission of instructor.			
<b>6030</b>	<b>Micro-Electro-Mechanical Systems (MEMS) Design</b>	<b>G</b>	<b>3</b>
The field of micro-electro-mechanical systems (MEMS) is an interdisciplinary area that includes design and fabrication of sensors and actuators (transducers) that are capable of micron-size mechanical movements. Lectures cover a wide range of topics in design & fabrication. Projects include FE simulation of an inertial, optical, RF, or power MEMS devices as an integral part of this course. Prereq: Grad standing in Engineering or Physics, or permission of instructor.			
<b>6070</b>	<b>Project Management in Electrical and Computer Engineering</b>	<b>G</b>	<b>3</b>
Students learn project management principles and apply them to Electrical and Computer Engineering real-world projects. Prereq: Grad standing in ECE. Not open to students with credit for 6194.02.			
<b>6101</b>	<b>Computer Communication Networks</b>	<b>G</b>	<b>3</b>
Foundational understanding of network analysis, error-control, routing, congestion-control, multi-access, and their examples in the context of the existing communication networks. A previous course in statistics is recommended for students taking this course. Prereq: Grad standing in Engr. Not open to students with credit for CSE 6461. Cross-listed in CSE 6461.			
<b>6102</b>	<b>Wireless Networks</b>	<b>G</b>	<b>3</b>
Design principles and communication algorithms for wireless networks with a focus on MAC and routing protocols, scheduling algorithms, power control, and scaling properties.			

<b>6193</b>	<b>Individual Studies in Electrical and Computer Engineering</b>	<b>G</b>	<b>0 - 12</b>
Individual studies project. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>6202</b>	<b>Stochastic Signal Processing</b>	<b>G</b>	<b>3</b>
Spectrum estimation, array processing, and adaptive filtering. Prereq: Not open to students with credit for 800 or 801.01.			
<b>6244</b>	<b>Design and Process Integration for Wide Band Gap Power Devices</b>	<b>G</b>	<b>3</b>
Design and processing of wide band gap power devices (including SiC, GaN and ultra wide band gap semiconductors) and reliability considerations. 2D device simulations, layout considerations for power chip from 600 V to 15 kV. Prereq: Grad standing in Engineering or Physics. Not open to students with credit for 6234.			
<b>6511</b>	<b>Nonlinear Optics</b>	<b>G</b>	<b>3</b>
Nonlinear optics for the generation, propagation, amplification, and control of laser light; all-optical switching and solitons; modern applications in high speed lightwave devices and systems. Prereq: 5012, or Grad standing.			
<b>6531</b>	<b>Fundamentals of Semiconductor Devices</b>	<b>G</b>	<b>3</b>
An overview of the physics, design, and engineering of semiconductor electronic and optoelectronic devices. Applications of silicon, compound semiconductor, and nanotechnology will be covered. Prereq: 5530 (730), or permission of instructor. Not open to students with credit for 5531.			
<b>6532</b>	<b>Nanofabrication and Nanoscale Devices</b>	<b>G</b>	<b>3</b>
Fundamentals of nanostructures and devices; engineering and physics of new devices, confined structures in low dimensions and their effects on traditional devices; nanofabrication and nanomanufacturing. Prereq: 6531, 5531, or 730, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 5532 (835.03).			
<b>6533</b>	<b>Infrared Detectors and Systems</b>	<b>G</b>	<b>3</b>
This course covers the basics of infrared photodetectors and systems. It will include basic geometrical optics, radiometry, figures of merit and types of infrared detectors. Prereq: 5530, or permission of instructor. Not open to students with credit for 5194.10.			
<b>6535</b>	<b>Semiconductor Optoelectronic Devices</b>	<b>G</b>	<b>3</b>
This course will cover the basics and physics of semiconductor optoelectronic devices including light-emitting diodes, semiconductor lasers, photodetectors, and solar cells. Prereq: Grad standing in Engineering or Physics.			
<b>6541</b>	<b>Advanced Topics in Sustainable Energy and Power Systems</b>	<b>G</b>	<b>3</b>
Advanced topics in sustainable energy and power systems; basic issues and solutions to sustainable energy; the concept of smart grid; cyber control and security. Prereq: 5025 (624) or 724. Not open to students with credit for 5541.			
<b>6750</b>	<b>Linear Systems Theory</b>	<b>G</b>	<b>3</b>
In-depth treatment of linear dynamical systems. State equations solution. Controllability and observability. Canonical forms. Internal and external stability. Linear feedback and observer design. Geometric theory. Prereq: Not open to students with credit for 5750 (750).			
<b>6754</b>	<b>Nonlinear Systems Theory</b>	<b>G</b>	<b>3</b>
Provides fundamental mathematical tools for the analysis of nonlinear dynamical systems. Basic techniques for the synthesis of nonlinear control systems are introduced. Prereq: Not open to students with credit for 5754.			
<b>6999</b>	<b>Research for Thesis</b>	<b>G</b>	<b>½ - 15</b>
Research for thesis. Repeatable to a maximum of 15 cr hrs or 30 completions. This course is graded S/U.			
<b>7001</b>	<b>Stochastic Processes, Detection, and Estimation</b>	<b>G</b>	<b>3</b>
Stochastic processes; detection and decision theory; hypothesis testing, parameter estimation; and applications to communications and signal processing. Prereq: 6001 (804). Not open to students with credit for 806.			
<b>7003</b>	<b>Wireless Communication Theory</b>	<b>G</b>	<b>3</b>
Theory and analysis of wireless communication systems. Topics include: multipath fading channels; modulation, equalization, and coding for fading channels; MIMO systems; capacity calculations. Prereq: 6001 (804). Not open to students with credit for 807 or 809.			
<b>7005</b>	<b>Information Theory</b>	<b>G</b>	<b>3</b>
Mathematical models for channels and sources: entropy, information, data compression, channel capacity, Shannon's theorems, rate distortion theory. Prereq: 6001 (804). Not open to students with credit for 801.02.			
<b>7010</b>	<b>Electromagnetic Field Theory II</b>	<b>G</b>	<b>3</b>
Green's functions with applications; spectral representation of sources; sources in layered media and Sommerfeld integrals; time-domain fields, retarded potentials, and transients; periodic structures; integral equations. Prereq: 6010 (719). Not open to students with credit for 810 or 811.			

## 174 Electrical and Computer Engineering

**7011 Computational Electromagnetics** G 3

Advanced topics in numerical methods for solving Maxwell equations, including finite element methods, integral equation methods, and their hybridization.  
Prereq: 5510 (715) or 6010. Not open to students with credit for 813 or 814.

**7020 Advanced Data Converters and Phase-Locked Loops** G 3

A comprehensive overview of the most recent system architectures of data converters and phase-locked loops. Provides a good understanding how performance specifications and process technology limitations lead to implementation decisions. The presented principles are illustrated by examples and real life case studies.  
Prereq: 5021 or 5023, or permission of instructor.

**7022 Advanced RF Integrated Circuits** G 3

Advanced topics on RF and mm-wave circuits. Frequency synthesizers, transmitter linearization techniques (e.g. polar circuits), MIMO and phase array circuits, power D/As.  
Prereq: 5022 (620), or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 694K or 694.02.

**7023 High Speed Interface Circuits and Systems Design** G 3

Analysis and design of link architectures and circuits for wireline communication systems. Emphasis on design intuition, link budgeting and power/performance trade-offs in implementation of data links in advanced CMOS process. Topics include channel characterization, noise analysis, equalization, transmitter and receiver circuits, signaling schemes, clocking, synchronization and timing recovery.  
Prereq or concur: 5020 and 5021, or permission of instructor.

**7027 Advanced Topics in Analog VLSI Design** G 4

Advanced topics in analog VLSI design, such as integrated data converters, or power management integrated circuits, or high-performance analog circuits. This includes: system and circuit architectures, performance metrics, practical implementations, design considerations in advanced semiconductor processes, chip design projects, and lab characterization.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs.

**7032 Physical Electronics of Advanced Semiconductor Devices** G 3

MOSCAPs, Gated Diode, CMOS Bulk/SOI Transistors, Photodiodes, Carrier Transport/Storage, Scaling, Mobility, CCDs, CMOS, EEPROMs, SiGe, SiC, ISFETs, BJTs, Noise and Modeling.  
Prereq: 5530 (730) or 6531. Not open to students with credit for 894 (Sp12, Advanced Semiconductor Devices) or 8194.04.

**7080 Ethics and Professionalism** G 1

Professionalism standards, ethical dilemmas, codes of ethics, moral frameworks and social justice, engineering as social experimentation, safety and risk, workplace rights and responsibilities, professional communications, research integrity, environmental ethics, global issues. Case study based approach.  
Prereq: Grad standing in ECE. This course is graded S/U.

**7100 Network Optimization and Algorithms** G 3

Convex optimization, probabilistic, and algorithmic methods for the design and analysis of efficient and practical algorithms for complex and stochastic communication networks.  
Prereq: Grad standing. Not open to students with credit for 894R.

**7103 Discrete Stochastic Processes** G 3

Stochastic processes in discrete time or space for electrical engineering. Renewal theory, Markov chains and processes, dynamic programming, basic large deviations theory and martingales.  
Prereq: 6001 (804). Not open to students with credit for 894Q or 894.01.

**7200 Signal Processing** G 3

Multi-rate signal processing, filter banks, perfect reconstruction, time-frequency analysis, and wavelets and applications.  
Prereq: Not open to students with credit for 700.

**7202 Reinforcement Learning** G 3

Fundamentals of Markov decision processes and reinforcement learning algorithms.  
Prereq: Grad standing in Engineering or Math. Not open to students with credit for ISE 7202. Cross-listed in ISE.

**7402 Advanced Machine Learning for Remote Sensing Image Interpretation** G 3

Introduces basic high-resolution remote sensing concepts with focus on optical remote sensing, and computational solutions for typical remote sensing problems. Students are assumed to know basic knowledge in statistical estimation, linear algebra and numerical methods for engineering. Students with prior experiences on remote sensing/machine learning/computer vision will find this easier to follow.  
Prereq: Grad standing, or permission of instructor. Not open to students with credit for CivilEn 7421. Cross-listed in CivilEn 7421.

**7531 Epitaxial Heterostructures** G 2

Science and techniques behind thin film growth and engineering for combining different materials, altering chemical composition at the nanometer scale, while controlling defects and strain. Epitaxial crystal growth will be explained. Students will gain an understanding of the kinetics, thermodynamics, and technology involved in epitaxial heterostructures and self-assembled nanostructures.  
Prereq: Grad standing. Not open to students with credit for MSE 7531. Cross-listed in MSE.

**7811 Electromagnetic Interference and Compatibility** G 3

Electromagnetic interference and compatibility, signal integrity in ICs, conducted emissions and electromagnetic radiation susceptibility, and crosstalk and shielding.  
Prereq: 6010 (719). Not open to students with credit for 614.

**7813 Advanced Antenna Theory and Design** G 3

Topics in Advanced Antenna Theory and Design.  
Prereq: 5011 or 613, or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Not open to students with credit for 815.

**7814 Microwave Remote Sensing** G 3

Description of microwave remote sensing systems. Theories of scattering from random media and rough surfaces.  
Prereq: 6010.

**7821 Mixed Signal Verification and CAD Tools** G 3

Principles of combining analog, RF, and digital design, simulation, and verification strategies using modern CAD tools.  
Prereq: 5020, 622, or 720. Not open to students with credit for 894Z or 822.

**7822 Advanced Nonlinear Microwave Circuit Engineering** G 3

Large-signal characterization and modeling of nonlinear RF circuits; power amplifiers; oscillators; modulators; wideband linearization, power efficient design.  
Prereq: 5027 or 723. Not open to students with credit for 694K or 694.02.

**7831 Microwave Semiconductor Devices** G 3

Principles of microwave semiconductor devices; scattering and high-field transport; Gunn effect; FET wave equation, HEMT; HBT; large signal RF modeling and measurements; noise; traps; self-heating.  
Prereq: Grad standing in Engr or Physics.

**7841 Advanced Topics in Power Electronics** G 3

Advanced topics of power electronics, beginning with utility and vehicle applications and evolving into advanced circuit topologies and control.  
Prereq: 5025 (624). Not open to students with credit for 844.

**7842 Advanced Topics in Electric Machines** G 3

Advanced topics of electric machines, beginning with dynamic modeling and principles of vector control and evolving into new design and control of electric machines for advanced traction motors and renewable energy generator systems.  
Prereq: 5541 (643) and 5551 (650). Not open to students with credit for 743, 744, or 845.

**7843 Advanced Topics in Power Systems** G 3

Advanced topics of power system protection, beginning with equipment protection and evolving into system wide protection design and operation to accommodate smart-grid technologies.  
Prereq: 5042 or 740. Not open to students with credit for 741.

**7850 Hybrid Dynamical Systems: Theory and Applications** G 3

Introduction to hybrid systems (continuous dynamics coupled with discrete logic rules). Topics include stability analysis, optimal control, model predictive control, reachability, and state estimation of hybrid systems. Emphasis will be placed on applying existing hybrid systems theories to a wide range of applications in networked control systems, smart grid, power electronics, and robotics.  
Prereq: 6750 or 5750 (750).

**7854 Nonlinear and Adaptive Control** G 3

Advanced analysis of uncertain nonlinear systems. Design methodologies for complex interconnected nonlinear systems. Applications of nonlinear and adaptive control design to aerospace and robotic systems.  
Prereq: 6754 (5754 or 754) and 6750 (5750 or 750). Not open to students with credit for 857.

**7858 Intelligent Control** G 3

Fuzzy control, neural control, genetic algorithms, learning control, and distributed intelligent control.  
Prereq: 5551 (551) or equiv. Not open to students with credit for 858.

**7859 Sliding Mode Control in Electromechanical Systems** G 3

Sliding modes an efficient tool to control high order dynamic plants operating under uncertainty conditions.  
Prereq: 5750 (750) or MechEng 5372. Not open to students with credit for 859 or MechEng 7259 or 859. Cross-listed in MechEng 7259.

**7864 Advanced Computer Design** G 3

Parallel computer architectures, pipeline design, multiprocessor design, interprocessor communication, multi-core architectures, case studies and application examples.  
Prereq: 5362 (662) or Grad standing. Not open to students with credit for 864.

**7866 Computer Vision** G 3

Computer vision systems, image models, feature extraction, shape representation and recognition, object modeling and recognition, matching, probabilistic and statistical modeling, semantic knowledge, and face perception.  
Prereq: 5460 (707). Not open to students with credit for 863.

**7868 Pattern Recognition and Machine Learning** G 3

Fundamentals of pattern recognition techniques and their application to computer and electrical engineering problems, medicine, cognitive science, and bioinformatics.  
Prereq: 6001 (804). Not open to students with credit for both 779 and 874.



## Electrical and Computer Engineering 175

<b>8001</b>	<b>Advanced Topics in Communications</b>	<b>G</b>	<b>3</b>
Current topics in information theory and the practice of digital communications. Prereq: 7001 (806). Repeatable to a maximum of 6 cr hrs.			
<b>8019</b>	<b>Advanced Topics in Electromagnetics and Optics</b>	<b>G</b>	<b>3</b>
Topics are chosen to prepare graduate students for research and application in current problems in electromagnetics and optics. Prereq: 6010 (719). Repeatable to a maximum of 9 cr hrs.			
<b>8101</b>	<b>Advanced Topics in Networking</b>	<b>G</b>	<b>3</b>
Advanced topics and new areas of interest in the theory of networking and networked systems. Prereq: 6001 (804). Repeatable to a maximum of 6 cr hrs.			
<b>8193</b>	<b>Individual Studies in Electrical and Computer Engineering</b>	<b>G</b>	<b>0 - 12</b>
Individual studies project. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8201</b>	<b>Advanced Topics in Signal Processing</b>	<b>G</b>	<b>3</b>
Current topics in the theory and practice of signal processing. Prereq: 7001 (806). Repeatable to a maximum of 6 cr hrs.			
<b>8250</b>	<b>Continuous Time Optimal Control</b>	<b>G</b>	<b>3</b>
Embraces the three historical trends in dynamic optimization: Calculus of Variations, Pontryagin's Minimum Principle, and Bellman's Principle of Optimality. Not only mathematical aspects of the three principles will be taught, but also their strengths and weaknesses - it is often less important to know how to apply a given principle than to know when. Prereq: 5551 or MechEng 5372, or permission of instructor. Not open to students with credit for MechEng 8220. Cross-listed in MechEng 8220.			
<b>8851</b>	<b>Advanced Topics in Control Theory</b>	<b>G</b>	<b>3</b>
Current topics in control theory, optimization, and decision theory. Prereq: Permission of instructor.			
<b>8862</b>	<b>Special Topics in Advanced Computer Design Methodologies</b>	<b>G</b>	<b>3</b>
Design automation, computer aided design, testing, and design for energy efficiency. Prereq: Grad standing in Engineering. Repeatable to a maximum of 9 cr hrs.			
<b>8891</b>	<b>Seminar in Electrical and Computer Engineering</b>	<b>G</b>	<b>½ - 2</b>
Seminar in Electrical and Computer Engineering. Prereq: Grad standing in ECE. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.			
<b>8898</b>	<b>Open Graduate Seminar</b>	<b>G</b>	<b>½ - 3</b>
Introduction to potential research areas. Students will attend OSU sponsored talks relevant to topics in Electrical Engineering and critique them through written reports. Prereq: Grad standing in ECE. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>8999</b>	<b>Research for Dissertation</b>	<b>G</b>	<b>½ - 15</b>
Research for dissertation. Repeatable to a maximum of 30 completions. This course is graded S/U.			

### Engineering

<b>1100.01</b>	<b>Introduction to Ohio State and Mechanical and Aerospace Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: strategies for successful transition, academic requirements, university procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in College of Engineering. Not open to students with credit for FAES 1100, ArtsSci 1100, HumanEc 1100, or Exp 1100.			
<b>1100.02</b>	<b>Introduction to Ohio State and Aviation</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.03</b>	<b>Introduction to Ohio State and Biomedical Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.05</b>	<b>Introduction to Ohio State and Civil and Environmental Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			

<b>1100.06</b>	<b>Introduction to Ohio State and Computer Science and Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.07</b>	<b>Introduction to Ohio State and Electrical and Computer Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.08</b>	<b>Introduction to Ohio State and Engineering Physics</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.10</b>	<b>Introduction to Ohio State and Food, Agricultural, and Biological Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.11</b>	<b>Introduction to Ohio State and Industrial and Systems Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.12</b>	<b>Introduction to Ohio State and Materials Science and Welding Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for ArtsCol 1100, ArtsSci 1100, Exp 1100, FAES 1100, or HumanEc 1100.			
<b>1100.13</b>	<b>Introduction to Ohio State and Mechanical Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1100.15</b>	<b>Introduction to Ohio State and Engineering</b>	<b>U</b>	<b>1</b>
Introduction to the University community and College of Engineering: Strategies for successful transition, academic requirements, University procedures, grading system, resources, overview of engineering academic areas of study and services. Prereq: Enrollment in the College of Engineering. Not open to students with credit for FAES 1100, ArtsCol 1100, ArtsSci 1100, HumanEc 1100, and Exp 1100.			
<b>1110.01</b>	<b>Introduction to Ohio State and Aeronautical and Astronautical Engineering I</b>	<b>U</b>	<b>½</b>
Introduction to the University community and College of Engineering: Strategies for successful transition; Academic requirements; University procedures; Grading system; Resources; Overview of engineering academic areas of study and services. Prereq: Enrollment in Engineering. Not open to students with credit for Engr 1100 (Engineer 100), FABEng 1100 (100), ENR 1100 (100), or USAS 1100 (100).			
<b>1110.02</b>	<b>Introduction to Ohio State and Aviation I</b>	<b>U</b>	<b>½</b>
Introduction to the University community and College of Engineering; Strategies for successful transition; Academic requirements; University procedures; Grading system; Resources; Overview of engineering academic areas of study and services. Prereq: Enrollment in Engineering. Not open to students with credit for Engr 1100 (Engineer 100), FABEng 1100 (100), ENR 1100 (100), or USAS 1100 (100).			
<b>1110.03</b>	<b>Introduction to Ohio State and Biomedical Engineering I</b>	<b>U</b>	<b>½</b>
Introduction to the University community and College of Engineering; Strategies for successful transition; Academic requirements; University procedures; Grading system; Resources; Overview of engineering academic areas of study and services. Prereq: Enrollment in Engineering. Not open to students with credit for Engr 1100 (Engineer 100), FABEng 1100 (100), ENR 1100 (100), or USAS 1100 (100).			



**1120.13 Introduction to Ohio State and Mechanical Engineering II** U ½

Assessment of major / academic interests, advanced study skills, campus activities, program enrichment opportunities, engineering services, internships, and development of a personalized four-year curricular plan in an engineering major.  
Prereq or concur: Engr 1110.XX. Not open to students with credit for Engr 1100 (Engineer 100), FABEng 1100 (100), ENR 1100 (100), and USAS 1100 (100).

**1120.14 Introduction to Ohio State and Welding Engineering II** U ½

Assessment of major / academic interests, advanced study skills, campus activities, program enrichment opportunities, engineering services, internships, and development of a personalized four-year curricular plan in an engineering major.  
Prereq or concur: Engr 1110.XX. Not open to students with credit for Engr 1100 (Engineer 100), FABEng 1100 (100), ENR 1100 (100), and USAS 1100 (100).

**1121 Graphic Presentation** U 2

Presentation of three-dimensional subjects by precise graphics: orthographic, sectional, pictorial, and introduction to computer graphics.  
Prereq: Not open to students with credit for EnGraph 121.

**1138 Fundamentals of Mathematics for Engineers** U 4

This application-oriented, hands-on, introduction to engineering mathematics course will provide an overview of the salient math topics most heavily used in beginning engineering courses. All math topics will be presented within the context of an engineering application, and reinforced through extensive examples of their use in the core engineering courses.  
Prereq: Math Placement Level N. Not open to students with credit for Math 1151. Cross-listed in Math.

**1180 Spatial Visualization Practice and Development** U 1

Provide instruction and exercises to develop spatial visualization skills in preparation for Fundamentals of Engineering and advanced coursework.

**1181.01 Fundamentals of Engineering I** U 2

Engineering problem solving utilizing computational tools such as Excel and Matlab; hands-on experimentation; modeling; ethics; teamwork; written, oral and visual communications.  
Prereq or concur: Math 1140 or 1141; or Math 1150 or above. Not open to students with credit for Engineer 183.01, 183.02, Engr 1182.01, 1182.02, 1182.03, 1282.01, 1282.02, 1282.03, 1282.04, 1186.01, 1187, or 1188.

**1181.02 Fundamentals of Engineering I - Scholars** U 2

Engineering problem solving utilizing computational tools such as Excel and Matlab; hands-on experimentation; modeling; ethics; teamwork; written, oral and visual communications.  
Prereq or concur: Math 1140 or 1141; or Math 1150 or above; and Scholar status. Not open to students with credit for Engineer 183.01, 183.02, Engr 1182.01, 1182.02, 1182.03, 1186.01, 1187, or 1188.

**1182.01 Fundamentals of Engineering II** U 2

Introduction to 3D visualization and CAD; engineering design-build process; teamwork; written, oral and visual communications; project management.  
Prereq: 1181.01 or 1181.02 or 1281.01H or 1281.02H or 1281.03H. Prereq or Concur: Math 1141; or Math 1151 or above. Not open to students with credit for Engineer 181.01 or 181.02 or Engr 1186 or 1187 or 1188; not repeatable if credit earned for 1182.01 or 1182.02 or 1182.03 or 1282.01H or 1282.02H or 1282.03H or 1282.04H.

**1182.02 Fundamentals of Engineering II - Scholars** U 2

Introduction to 3D visualization and CAD; engineering design-build process; teamwork; written, oral and visual communications; project management.  
Prereq: 1181.01 or 1181.02 or 1281.01H or 1281.02H or 1281.03H, and Scholars status.  
Prereq or concur: Math 1151 or above. Not open to students with credit for Engineer 181.01 or 181.02 or Engr 1186 or 1187 or 1188; not repeatable if credit earned for 1182.01 or 1182.02 or 1182.03 or 1282.01H or 1282.02H or 1282.03H or 1282.04H.

**1182.03 Fundamentals of Engineering II - Nanotechnology** U 2

Introduction to 3D visualization and CAD; engineering design-build process; teamwork; written, oral and visual communications; project management.  
Prereq: 1181.01 or 1181.02 or 1281.01H or 1281.02H or 1281.03H. Concur: Math 1141; or Math 1151 or above. Not open to students with credit for Engineer 181.01 or 181.02 or Engr 1186 or 1187 or 1188; not repeatable if credit earned for 1182.01 or 1182.02 or 1182.03 or 1282.01H or 1282.02H or 1282.03H or 1282.04H.

**1182.04 Fundamentals of Engineering 2 - Engineering Technology** U 2

Introduction to 3D visualization and CAD; engineering design-build process; teamwork; written, oral and visual communications; project management. Regional campuses and Engineering Technology majors who are concurrently enrolled in EngrTec 2500 Manufacturing Processes II.

**1186.01 Fundamentals of Engineering for Transfer - CAD** U 1½

Introduction to 3D visualization and CAD; written, oral and visual communications.  
Prereq: Not open to students with credit for Engineer 186.

**1187 Fundamentals of Engineering for Transfer - MATLAB** U 1

Engineering problem solving utilizing computational tools such as Matlab.  
Prereq or concur: Math 1150 or above. Not open to students with credit for Engr 1221 or Engineer 187.

**1188 Fundamentals of Engineering for Transfer - Problem Solving and Design** U 1½

Introduction engineering problem solving and design through a hands-on design build project; teamwork; written, oral and visual communications; project management.  
Prereq: Engr 1186 and 1187, or 1187 and 1121. Concur: Math 1151 or above, or equiv. Not open to students with credit for Engineer 185.

**1194 Group Studies in Engineering** U 1 - 4

Special topics of general interest to engineering students.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**1194H Group Studies in Engineering - Honors** U 1 - 4

Special topics of general interest to engineering honors students.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**1195 Women in Engineering Seminar** U 1

Guest speakers share their knowledge and experience about the career options available in engineering; class discussions; activities for building professional awareness.  
Prereq: First-year Women in Engineering learning community students (Autumn semester only). Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

**1195.02 Women in Engineering Second Year Seminar Course** U ½

This Seminar Course will provide 2nd year students in the Women in Engineering Learning Community (LC) with information and content relative to second year engineering students in terms of professional development, undergraduate engineering research opportunities, faculty and professional engineering interactions.  
Prereq: Soph or Jr standing, and enrollment in the College of Engineering. This course is graded S/U.

**1196 Minority Engineering Program Seminar** U 1

Course is designed to assist beginning engineering students in making a smooth and informed transition from high school to college. The goal is to aid each student in making a positive adjustment to his/her new environment while exploring and planning career opportunities in the broad field of engineering along with enhancing their personal growth and development. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

**1197.01 Green Engineering Scholars Seminar** U 1

Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to Scholars program theme; students rights, responsibilities, and expectations; overview of relevant major and careers.  
Prereq: Enrollment in Green Engineering Scholars Program, or permission of instructor. Repeatable to a maximum of 2 ch hrs.

**1197.02 Humanitarian Engineering Scholars Seminar** U 1

Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to Scholars program theme; students rights, responsibilities, and expectations; overview of relevant major and careers.  
Prereq: Enrolled in Humanitarian Engineering Scholars Program, or permission of instructor. Repeatable to a maximum of 2 ch hrs.

**1221 Introduction to Computer Programming in MATLAB for Engineers and Scientists** U 2

Introduction to computer programming and problem solving techniques with MATLAB applications in engineering and the physical sciences; algorithm development; programming lab experience.  
Prereq: Engr 1181.01 or 1181.02 or 1187 or 1281.01H or 1281.02H or 1281.03H. Not open to students with credit for Engineer 167 or CSE 205. This course is available for EM credit. Cross-listed in CSE.

**1259 Fundamentals of Academic Success for Engineering Students** U 3

Teaches time management and study skills to promote academic success. Students learn study skills and practice time management in relation to their engineering coursework.  
Prereq: Enrollment in the College of Engineering.

**1281.01H Fundamentals of Engineering for Honors I** U 5

Engineering problem solving utilizing computational tools such as Excel and MATLAB; algorithm development; introduction to C++ programming for engineering; hands-on experimentation; modeling; ethics; teamwork; written, oral and visual communications.  
Prereq: Honors standing, and enrollment in the College of Engineering; or permission of instructor. Prereq or concur: Math 1151, 1161.02, or 1181H. Not open to students with credit for 1181.01, 1181.02, Engineer 191.01H, 191.02H, or CSE/Engr 1222.

**1281.02H Fundamentals of Engineering for Honors I - Advanced Programming** U 5

Engineering problem solving utilizing computational tools such as Excel and MATLAB; algorithm development; introduction to C++ programming for engineering; hands-on experimentation; modeling; ethics; teamwork; written, oral and visual communications. This variant of the course is intended for students who are advanced in computer programming skills.  
Prereq: Honors standing, and enrollment in the College of Engineering; or permission of instructor. Prereq or concur: Math 1151, or 1161.02, or 1181H. Not open to students with credit for 1181.01, 1181.02, Engineer 191.01H, 191.02H, or CSE/Engr 1222.

## 178 Engineering

<b>1282.01H</b>	<b>Fundamentals of Engineering for Honors II - Robotics</b>	<b>U</b>	<b>3</b>
Introduction to 3D visualization and CAD; engineering design-build process; teamwork; written, oral and visual communications; project management. Standard course incorporating a robot design-build project. Prereq: Honors standing, and 1281.01H or 1281.02H or 1281.03H, and enrollment in the College of Engineering; or permission of instructor. Not open to students with credit for 1182.01, 1182.02, 1182.03, Engineer 193.01H, or 193.02H.			
<b>1282.02H</b>	<b>Fundamentals of Engineering for Honors II - Nanotechnology</b>	<b>U</b>	<b>3</b>
Introduction to 3D visualization and CAD; engineering design process; teamwork; written, oral and visual communications; project management. Alternative course with an emphasis on a nanotechnology research and development project. Prereq: Honors standing, and 1281.01H or 1281.02H or 1281.03H, and enrollment in the College of Engineering; or permission of instructor. Not open to students with credit for 1182.01, 1182.02, 1182.03, Engineer 193.01H, or 193.02H.			
<b>1282.04H</b>	<b>Fundamentals of Engineering for Honors 2 - Integrated Business &amp; Engineering</b>	<b>U</b>	<b>3</b>
Introduction to 3D visualization and CAD; engineering design process; teamwork; written, oral and visual communications; project management. An alternative to the standard 1282.01H course with an emphasis on a product design project within the Integrated Business and Engineering (IBE) Honors program. Prereq: Honors standing, and 1281.01H or 1281.02H or 1281.03H or permission of instructor, and enrollment in Integrated Business and Engineering (IBE) program. Not open to students with credit for 1182.01 or 1182.02 or 1182.03.			
<b>1510</b>	<b>Metacognitive Engineering Problem Solving Strategies</b>	<b>U</b>	<b>1</b>
The course teaches students the concept of metacognition and informs its application to problem solving in engineering courses. Student engage in guided problem solving practice that hones their thinking and helps them make informed decisions about mastering engineering course concepts. Concur: Math 1151, and permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>2193</b>	<b>Individual Studies in Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering students not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering students. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>2194H</b>	<b>Group Studies in Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering honors students not otherwise offered. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>2367</b>	<b>American Attitudes About Technology</b>	<b>U</b>	<b>3</b>
Discussion, analysis, and intensive writing in a technical and professional context based on study of American attitudes about technology. Prereq: English 1110 (110), and Soph standing or above. Not open to students with credit for Engineer 367. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.01H</b>	<b>Honors American Attitudes About Technology</b>	<b>U</b>	<b>3</b>
Discussion, analysis, and intensive writing in a technical and professional context based on study of American attitudes about technology. Prereq: Honors standing; and English 1110.01 (110.01) or 1110.01H (110.01H); and Soph standing or above. Not open to students with credit for Engr 2367 (367). GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2797.01</b>	<b>Engineering Study Abroad in North America</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in North America. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.02</b>	<b>Engineering Study Abroad in Central America</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in Central America. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.03</b>	<b>Engineering Study Abroad in South America</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in South America. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.04</b>	<b>Engineering Study Abroad in East Asia</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in East Asia. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.05</b>	<b>Engineering Study Abroad in South Asia</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in South Asia. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.06</b>	<b>Engineering Study Abroad in Central Asia</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in Central Asia. Repeatable to a maximum of 30 cr hrs or 4 completions.			

<b>2797.07</b>	<b>Engineering Study Abroad in Oceania</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in Oceania. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.08</b>	<b>Engineering Study Abroad in Middle East</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in Middle East. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.09</b>	<b>Engineering Study Abroad in Africa</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in Africa. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.10</b>	<b>Engineering Study Abroad in Europe</b>	<b>U</b>	<b>½ - 12</b>
Study abroad in Europe. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>2797.11S</b>	<b>Service Learning Trip to Montana de Luz, Honduras</b>	<b>U</b>	<b>3</b>
Students will take this course and then participate in the in-country field portion of the Engineering Service-Learning/Montana de Luz, Honduras program series. Students will travel to Honduras and implement and evaluate the projects they developed in the Spring Semester. In addition, the students will complete technical documentation and present their projects in a conference-style format. Application required. Repeatable to a maximum of 9 cr hrs.			
<b>3194</b>	<b>Group Studies in Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering students not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>4191</b>	<b>Professional Practice in Engineering</b>	<b>U</b>	<b>0</b>
Students complete a cooperative or internship assignment in private industry or for a government agency; assignments are supervised by the employer and monitored and evaluated by Co-op and Internship Program. Prereq: Permission of instructor. Repeatable to a maximum of 8 completions. This course is progress graded (S/U).			
<b>4193</b>	<b>Individual Studies in Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering students not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering students not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>4194H</b>	<b>Group Studies in Engineering Honors</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to engineering honors students not otherwise offered. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>4410.01</b>	<b>Computer Graphics Using AutoCad</b>	<b>U</b>	<b>2</b>
An advanced course in graphics with emphasis on the application on computer generated graphics to the solution of engineering problems. AutoCad and Civil 3D to be used. Prereq: Engr 1182, 1185, or 1282. Not open to students with credit for EnGraph 410.			
<b>4410.02</b>	<b>Computer Graphics Using SolidWorks</b>	<b>U</b>	<b>2</b>
An advanced course in graphics with emphasis on the application on computer generated graphics to the solution of engineering problems. SolidWorks to be used. Prereq: Engr 1121 or 1182 or 1185 or 1282. Not open to students with credit for EnGraph 410.			
<b>4692.01S</b>	<b>Service Learning in Engineering</b>	<b>U</b>	<b>1 - 3</b>
Experimental education characterized by participation in an organized service activity connected to specific learning outcomes. Meets community needs and includes student reflection. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions.			
<b>4692.02S</b>	<b>Engineering Service Learning Ghana Preparation</b>	<b>U</b>	<b>3</b>
International Engineering Service Learning Program developed by the College of Engineering, OIA and Knowlton School of Architecture's City and Regional Planning. This IESL Program preparation course teaches the concepts of humanitarian engineering through an authentic real world service learning experience. Prereq: Second writing course, or Grad standing in the College of Engineering; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>4850S</b>	<b>Translating Engineering Research to K-8 (TEK8)</b>	<b>U</b>	<b>3</b>
Students translate a prior engineering research experience through developing and delivering and documenting mini-design challenges for an underserved K-8 school partner. Prereq: 1182, 1188, or 1282H; and permission of instructor.			
<b>4891</b>	<b>Colloquia, Workshops, and College Seminars</b>	<b>U</b>	<b>1 - 4</b>
Special colloquia, workshops or seminars of general interest to engineering students. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is graded S/U.			

**4891.01 College Seminar - Perspectives on Sustainability U 1**

A broad view of sustainability and the environment, with the opportunity to see sustainability through different perspectives. Speakers from different areas of expertise will present on a variety of sustainability topics so students can better understand why sustainability is both important and complex.

Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

**4891.02 College Seminar - Promoting Creativity and Innovation U 2**

Tools to refine creative motivation and to encourage multidisciplinary innovation. Fostering an appreciation for the processes of innovative design and prototyping by enabling students to explore the concept of creativity through a variety of speaker experiences.

Repeatable to a maximum of 4 cr hrs.

**4910 Tools for Engineering Career Success U 1**

Designed to prepare students for an effective internship/co-op and job search. Covers a range of topics including: self-assessment, goal setting, time management, communication and correspondence, resumes, and interviewing. Course will also feature experienced guest speakers from industry. Must be registered with Engineering Career Services.

Prereq: Enrollment in the College of Engineering. This course is graded S/U.

**4998.01 Undergraduate Research in Engineering Education U 1 - 4**

Opportunity for undergraduates to conduct research in engineering education.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.

**4998.02 Undergraduate Research in Engineering U 1 - 4**

Opportunity for undergraduates to conduct research in engineering.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.

**4999H Engineering Education Research for Thesis U 1 - 5**

Honors program students are offered the opportunity to pursue independent project/research. Student presentation and thesis writing included.

Prereq: Honors standing, and Sr standing, and CPHR 3.4 or above; or permission of instructor. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is graded S/U.

**5081.01 Engineering Capstone Collaboration I U G 3**

Students contract to collaborate with an engineering capstone design team for two semesters and contribute their disciplinary expertise.

Prereq: Permission of instructor. Not open to Engineering Majors.

**5081.02 Engineering Capstone Collaboration II U G 3**

Students contract to collaborate with an engineering capstone design team for second semester and contribute their disciplinary expertise.

Prereq: Permission of instructor. Not open to Engineering Majors.

**5194 Group Studies in Engineering U G 1 - 4**

Special topics of general interest to engineering students not otherwise offered.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**5695 Engineering Teamwork Seminar U G 1**

Interactive training seminar that teaches communications and interpersonal skills vital to success as an engineer in industry. Sponsored by Tau Beta Pi National Engineering Honor Society.

Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

**5710 Engineering Research Communications U G 3**

Engineering technical communications for academic writing and professional presentations, including authoring refereed journal articles and authoring and presenting conference papers in engineering disciplines.

Prereq: Sr or Grad standing.

**5797.01 Engineering Study Abroad in North America U G ½ - 12**

Study abroad in North America.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.02 Engineering Study Abroad in Central America U G ½ - 12**

Study abroad in Central America.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.03 Engineering Study Abroad in South America U G ½ - 12**

Study abroad in South America.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.04 Engineering Study Abroad in East Asia U G ½ - 12**

Study abroad in East Asia.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.05 Engineering Study Abroad in South Asia U G ½ - 12**

Study abroad in South Asia.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.06 Engineering Study Abroad in Central Asia U G ½ - 12**

Study abroad in Central Asia.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.07 Engineering Study Abroad in Oceania U G ½ - 12**

Study abroad in Oceania.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.08 Engineering Study Abroad in Middle East U G ½ - 12**

Study abroad in the Middle East.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.09 Engineering Study Abroad in Africa U G ½ - 12**

Study abroad in Africa.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.10 Engineering Study Abroad in Europe U G ½ - 12**

Study abroad in Europe.

Repeatable to a maximum of 30 cr hrs or 4 completions. This course is graded S/U.

**5797.11S Engineering Service-Learning in Honduras U G 3**

During the Engineering Service-Learning in Honduras program, students will travel to Honduras and implement, test, and evaluate the technologies they developed through Spring Semester. In addition, the students will complete technical documentation and present their projects in a conference-style format once they have returned from spring break travel.

Prereq: Jr, Sr, or Grad standing, or permission of instructor.

**5797.12 Exploring Culture and Engineering in India U G 3**

Students will travel to Jaipur, Agra, and Delhi, India to focus on the culture, history, and religion of India. Students will implement a design project they created in spring semester.

Prereq: 4692.01S in Sp Sem.

**5797.13 Engineering the Castles and Cathedrals of England and Wales U G 3**

A study abroad trip to England and Wales for the purpose of understanding the importance of several iconic castles and cathedrals and the various methods used for their construction. Participants must be physical fit enough to walk an extended length of time, negotiate rough terrain, climb steep steps, and not be afraid of heights.

GE historical study and diversity global studies course.

**5797.14 OSU - Colombia Collaboration U G 3**

This study abroad course is to focus on development of education in Colombia at the K-12 level via STEM education for students and collaborations with teachers to develop materials for students; and at the university level by collaboratively developing low-cost engineering experiments for laboratories, along with on-line instructional materials.

Prereq: 5050 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

**5797.15 Korea Aerospace University International Summer Program U G 3**

This course allows students to enroll in the Korea Aerospace University's International Summer Program and earn credits towards a degree in Aviation.

Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**5797.16S Solar Engineering Service-Learning U G 3**

During the Solar Engineering Service-Learning program, students will travel abroad and collaborate with partner organizations and communities, to evaluate, assess, design, pilot, and implement various solar technologies. Must be admitted to the program through the Office of International Affairs before enrolling. Students will enroll in ENGR 4692.XXS (1 credit hour) for second session spring term.

Repeatable to a maximum of 9 cr hrs.

**5797.17S Engineering Service-Learning Ghana In Country U G 4**

The Engineering Service-Learning in Ghana course takes place during autumn semester in preparation for winter break travel; Travel and service will be conducted during the break between autumn and spring semesters.

Prereq: Enrollment in the College of Engineering, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**5797.18 Engineering of Ancient Greece U G 3**

A study abroad trip to Greece for the purpose of understanding the importance of the influences and continuing contributions to society of Ancient Greece's Engineering and Technological advancements. Students will visit various significant engineering marvels and examine the methods used for their formulation and construction.

GE cultures and ideas course.

**5797.19 Design Principles and Biomedical Research at Nanjing University U G 3**

Internationalized medical device design course. Introduction to design principles; needs finding, idea generation, and presentation of projects that focus on helping persons with medical based problems. Documentation and technical skills are developed throughout the course. Activities in team-building, cultural awareness and global engineering are emphasized throughout the course.

Prereq: Math 2177, or 2174, or 2255 and 2568, or 2415 and 2568, or for CSE students 2568; Jr or Sr standing in the College of Engineering; and permission of instructor. Repeatable to a maximum of 6 cr hrs.

## 180 Engineering

**5797.20 Sustainable and Resilient Infrastructure in Italy** U G 3

During pre-travel lectures and assignments and a two-week in country trip, eligible students will compare and contrast differences between Italy and US built infrastructure, explore historical and cultural reasons for differences between the countries, and envision more sustainable and resilient built infrastructure. Application to the College of Engineering Study Abroad Program required.

Prereq: EnvEng 3200 or CivilEn 3310.

**5797.21S Sustainable and Resilient Tanzanian Communities - Engineering** U G 1 - 3

Sustainable and Resilient Communities focuses on applied, service-learning projects around Kilimanjaro, Tanzania. Students will contribute to the sustainability of partnered community's long-term food, water, energy, and health systems. In addition to participating in service in a global context, students will explore the complex challenges and opportunities of sustainable development in rural TZN.

Prereq: CivilEn 4000.01. Concur: CivilEn 4000.02, or permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions.

**5797.22S Guatemala Service-Learning** U G 3

Participating students will: (i) learn about poverty challenges, needs, and potential technical solutions, (ii) complete technical design/evaluation challenges, (iii) learn about Guatemalan history, culture, and current events, and (iv) learn about trip logistics/rules, (v) travel to Guatemala and support group objectives.

Repeatable to a maximum of 6 cr hrs.

**5797.23 Humanitarian Engineering and Culture in Guyana** U G 3

This course offers an opportunity to be engaged in a humanitarian engineering project trip to Georgetown, Guyana to work on solar education projects. Students who are a part of this course will learn about Guyanese history, culture, and current events; energy challenges, needs, and clean energy solutions; solar panel systems; complete technical design/evaluation challenges; and travel to Guyana.

Prereq: Jr, Sr, or Grad standing in Engr, and permission of instructor.

**5797.24 Sustainable Community Development - Honduras** U G 3

The course seeks to provide an opportunity for students to experience application of a broad range of engineering & non-engineering skillsets in a teambased environment working towards sustainable outcomes to humanitarian development challenges. Student teams from OSU & Zamorano University will work collaboratively with nonprofit Heart to Honduras to develop & support community-driven projects.

Prereq: Pre-major, major, or Grad standing in the College of Engineering, AgSysMt, ConSysM, or Industrial Design; and Engr 5050 or FABEng 2200 or international study abroad experience; and permission of instructor.

**5797.25 International Perspectives on Aviation** U G 3

This course will explore the implications of the Aviation Industry on world as a whole. Content will be organized to consider the social, economic and environmental impacts of aviation in a global context. Classroom learning will be reinforced through international travel during the semester.

Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.

**5901.01 Multidisciplinary Engineering Capstone Design Project I** U G 3

A multidisciplinary engineering capstone design experience which will utilize principles of multiple engineering disciplines for sponsored design projects. This course is full semester (14 week) course. Progress graded with Engr 5902.01.

Prereq: Sr or Grad standing, and permission of instructor. Not open to students with credit for 5901.01 and 5902.01. This course is progress graded.

**5901.02H Multidisciplinary Engineering Capstone Design Project II - Honors IBE** U G 3

This course is an honors version of ENGR 5901.01 and is required for the Integrated Business and Engineering (IBE) program. Students in multidisciplinary teams work on realistic and open-ended product development projects in conjunction with an industry sponsor. Teams practice modern development principles applying the concept of design thinking, user-focused design, and minimally viable product.

Prereq: Honors standing, and Sr standing in Engineering or Business, and enrollment in Integrated Business and Engineering (IBE) program; or permission of instructor.

**5902.01 Multidisciplinary Engineering Capstone Design Project II** U G 3

An integrated sequence constituting a multidisciplinary engineering capstone design experience which will utilize principles of multiple engineering disciplines for sponsored design projects. Sequenced with 5901.01.

Prereq: 5901.01, or permission of instructor. This course is progress graded.

**5902.02H Multidisciplinary Engineering Capstone Design Project II - Honors IBE** U G 3

This course is an honors version of ENGR 5902.01 and is required for the Integrated Business and Engineering (IBE) program. Students in multidisciplinary teams work on realistic and open-ended product development projects in conjunction with an industry sponsor. Teams practice modern development principles applying the concept of design thinking, user-focused design, and minimally viable product.

Prereq: 5901.02H, and Honors standing, and Sr standing in Engineering or Business, and enrollment in the Integrated Business and Engineering (IBE) program; or permission of instructor.

**6193 Individual Studies in Engineering** G 1 - 4

Opportunity for students to participate in supervised individual engineering experiences.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**6194 Group Studies in Engineering** G 1 - 4

Special topics of general interest to engineering students not otherwise offered.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**6210 Leadership and Team Effectiveness for Engineers** G 3

Introduction to topics in leadership and team effectiveness with a focus on applications for engineers.

Prereq: Grad standing, and enrollment in MGEL degree program; or permission of instructor.

**6220 Financial and Managerial Accounting for Engineers** G 3

Provides an overview of the basic topics in financial and managerial accounting. The primary focus will be on helping engineering students understand the meaning of the numbers in financial statements, their relationship to one another, and learning how they are used in planning, decision-making and control towards achieving the objectives of an organization.

Prereq: Grad standing, or permission of instructor; and enrollment in MGEL degree program. Not open to students with credit for AcctMIS 5000.

**6230 Technology Strategy & Innovation for Engineers** G 3

How technology strategy may lead to creation/persistence of competitive advantage. In contrast to core strategy course, provides series of strategic frameworks for managing high-tech businesses.

Prereq: Grad standing, and enrollment in MGEL degree program; or permission of instructor.

Not open to student with credit for BusMHR 7461.

**6850S Translating Engineering Research to K-8 (TEK8)** G 3

Guides graduate students through the development of design challenges inspired by prior research experiences. Develops the skills to teach engineering in under-resourced schools & recognize how to relay engineering skills to diverse populations. Design challenges are created to be age-appropriate for middle school, low cost, & facilitated by someone with little technical background in <90 minutes.

**7100 MGEL Integrative Project** G 1 - 5

Non-thesis research investigation; instructor-guided; comprehensive report required. Required course for MGEL program, in final or final two semesters of program. Total credits required: 5. Prereq: Enrollment in the Master Global Engineering Leadership program. Repeatable to a maximum of 5 cr hrs or 2 completions.

**7193 Individual Studies in Engineering** G 1 - 4

Opportunity for students to participate in supervised individual engineering experiences.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**7194 Group Studies in Engineering** G 1 - 4

Special topics of general interest to engineering students.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

**7200 Engineering Ethics and Professionalism** G 1

To learn professionalism and ethical decision-making strategies; topics include codes of ethics, moral frameworks, engineering as social experimentation, assessment of safety and risk, employer and employee rights and responsibilities, confidentiality and conflict of interest, whistle-blowing, research integrity, consulting engineers, expert witnesses. Engineering ethics case studies in detail

**7240 Education Research Methods in Engineering** G 3

Designing engineering educational research projects including authoring proposals for funding agencies.

Prereq: Grad standing.

**7710 Engineering Research Communications** G 3

Students will practice skills related to scholarly and industry communications for engineering. Topics include reading and analyzing scholarly articles; organizing and writing abstracts and research papers; strategies for problem definition, citation conventions, preparing papers for publication, developing and delivering effective presentations appropriate to scholarly and industry audiences.

Prereq: Grad standing in Engineering. Repeatable to a maximum of 6 cr hrs.

**7881 Interdepartmental Seminar** G 1 - 4

Seminars of general interest to engineering students.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**7891 Colloquia, Workshops, and Seminars** G 1 - 4

Special colloquia, workshops or seminars of general interest to engineering students.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**8194 Group Studies in Engineering** G 1 - 4

Special topics of general interest to engineering students.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

**8998 Research in Engineering Education** G 1 - 10  
 Opportunity to conduct research in engineering education.  
 Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.  
 This course is graded S/U.

**8999 Research in Engineering Education for Dissertation** G 1 - 10  
 Opportunity to conduct dissertation research in engineering education.  
 Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.  
 This course is graded S/U.

### Engineering Education

**4999 Undergraduate Thesis Research in Engineering Education** U 1 - 5  
 Undergraduate thesis research on topics in Engineering Education. For students pursuing Research Distinction.  
 Prereq: CPHR 3.0 or above, and Sr standing in the College of Engineering, and permission of instructor. Repeatable to a maximum of 5 cr hrs or 5 completions.

**4999H Undergraduate Honors Thesis Research in Engineering Education** U 1 - 5  
 Undergraduate Honors Thesis research on topics of Engineering Education. For student pursuing Honors Research Distinction.  
 Prereq: Honors standing, CPHR 3.4 or above, Sr standing in the College of Engineering, and permission of instructor. Repeatable to a maximum of 5 cr hrs.

**6100 Foundations and the Field of Engineering Education** G 3  
 This course is designed to prepare students for future courses, and careers in engineering education. Students will engage with literature focusing on theories and frameworks which highlight fundamental issues, questions, and approaches in engineering education.  
 Prereq: Enrollment in EngrEdu Grad program, or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**6200 Learning Theory, Pedagogy, and Assessment in Engineering Education** G 3  
 This course is designed to provide foundational understandings of educational learning theory, pedagogy and assessment methods within engineering education. The processes learned will inform research and instructional practice decisions, approaches and analysis.  
 Prereq: Enrollment in EngrEdu Grad program, or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**7189.01 Teaching Preparation and Support** G 2  
 This course supplements teaching content based training by exposing teachers to instructional pedagogies. It is a practical introduction to engineering education for instructors. Topics include using assessment for learning, best practices in instructional methods, techniques for self-reflection, etc. This version of the course is designed for new instructors.  
 Prereq: Grad standing in the College of Engineering.

**7189.02 Professional Development in College Teaching** G 1  
 This course supplements teaching content based training by exposing teachers to instructional pedagogies. It is a practical extension of ENGREDU 7189.01. Topics include developing new teaching modules, creating training materials for fellow instructors, furthering techniques for reflection, etc. This version of the course is designed for experienced instructors.  
 Prereq: Grad standing in the College of Engineering.

**7193 Individual Studies in Engineering Education** G 1 - 4  
 Individual Studies in Engineering Education for graduate students.  
 Prereq: Grad standing in the College of Engineering, and permission of instructor. Repeatable to a maximum of 16 cr hrs or 16 completions.

**7780 Research Design in Engineering Education** G 3  
 This course is designed to prepare students for productive research in engineering education throughout their graduate experience and professional careers. Research methods are highlighted and explored including quantitative, qualitative, and mixed methods.  
 Prereq: Grad standing in the College of Engineering.

**7881 Seminar in Engineering Education** G 1  
 This course is designed to provide students with the ability to maintain contemporary knowledge of the field of engineering education, understand how to communicate within the field, provide exposure to different stakeholders, and build community among engineering educators.  
 Prereq: Grad standing in the College of Engineering. Repeatable to a maximum of 4 cr hrs.

**7900 Career Exploration and Professional Development** G 3  
 This course is designed to prepare students for future careers and professional advancement at universities, colleges, community colleges, and technical colleges (both in tenure-track and clinical faculty appointments), government agencies, private industry, corporate training organizations, non-profits, and high schools challenged with incorporating engineering design into core science standards.  
 Repeatable to a maximum of 6 cr hrs.

**8998 Research in Engineering Education** G 1 - 5  
 This course offers graduate students an opportunity to conduct research in engineering education.  
 Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.  
 This course is graded S/U.

**8999 Research in Engineering Education for Dissertation** G 1 - 18  
 Research in Engineering Education for Dissertation.  
 Prereq: Enrollment in EngrEdu Grad program. Repeatable. This course is graded S/U.

### Engineering Technology

**1201.01T Exploring Engineering Technologies** U ½  
 Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.

**1201.02T Exploring Construction Careers and Industry** U ½  
 Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.

**1201.03T Exploring Agricultural Systems Management** U ½  
 Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.

**2011T Small Engine Basics** U 4  
 A study of the theory of operation, service and maintenance and repair of small off-road gasoline and diesel engines.  
 Prereq: Not open to students with credit for 240T and 247T. This course is available for EM credit.

**2015T Agricultural Equipment Operation and Maintenance** U 2  
 A study of tractors and other agricultural equipment with emphasis on operation, maintenance and adjustment for safe, efficient operation.  
 Prereq: Not open to students with credit for 215.01T or 215.02T. This course is available for EM credit.

**2016T Tillage, Planting, Harvesting, and Storage Equipment** U 3  
 Principles and applications of safely operating, adjusting, and maintaining agricultural equipment and storing crops. Recommended prereq: Completion of tractor/mobile equipment safety certification process.  
 Prereq: Not open to students with credit for 216T, 217T, and 231T. This course is available for EM credit.

**2040T Soil and Water Conservation Systems** U 4  
 Introduction to erosion control, irrigation, drainage, and wetland systems with an emphasis on land surveying and mapping, system selection, and design.  
 Prereq: CrpSoil 2300T and CrpSoil 2301T (221T). Not open to students with credit for 224T. This course is available for EM credit.

**2050T Introduction to Geographic Information Systems** U 3  
 A study of spatial relationships using global positioning and geographic information systems in urban and rural landscapes.  
 Prereq: GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

**2092T Problem Solving: Career and Society Applications** U 2  
 A multi-discipline, problem-solving course with emphasis on the application of problem solving and related topics in career and society settings.  
 Prereq: Soph standing. Not open to students with credit for 292T. This course is available for EM credit.

**2110T Construction Drawings & Basic Estimating** U 1  
 Reading and interpretation of various types of construction drawings, as well as an introduction to material quantity calculations and estimate development.  
 Prereq: GenMath 1030T or Math placement level S or higher. This course is available for EM credit.

**2120T Building Science: Methods & Materials** U 4  
 A study of materials science and installation methods used in residential and commercial construction. Emphasizes structural and architectural systems, moisture managed designs, air sealing, and thermal design for energy efficient structures.  
 Prereq or concur: English 1110.01; GenMath 1145T or Math 1148 or higher. This course is available for EM credit.

**2121T Drafting & Computer-Aided Design** U 2  
 Principles and applications of technical drawing utilizing proper drafting techniques for creating two dimensional, scaled drawings both by hand and by using current computer-aided design software. Basic computer skills required. Recommended prereq: Previous experience with mechanical drawing, engineering graphics, drafting, or equivalent.  
 This course is available for EM credit.

**2160T Estimating and Scheduling** U 2  
 Estimating complete projects and developing project schedules for standard construction projects in the residential or commercial sectors of the industry.  
 Prereq: 2110T, 2120T, 2440T, and Soph standing. This course is available for EM credit.

**2170T Construction Project Management** U 2  
 Principles and practices of construction project and construction business management.  
 Prereq or concur: 2160T, and Soph standing. This course is available for EM credit.

## 182 Engineering Technology

<b>2191.01T Construction Management Internship</b>	<b>U</b>	<b>2 - 3</b>
Construction Management occupational internship, structured to provide occupational experiences; supervised by an industry employer and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 2110T and 2120T (253T, 256T, and 257T), and 2600T, and CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.		
<b>2191.02T Hydraulic Power and Motion Control Internship</b>	<b>U</b>	<b>3</b>
Employment in fluid power industries; structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 2224T (274T), 2226T (271T), and 2322T (202T); CPHR 2.0 or above; permission of instructor. Repeatable to a maximum of 6 cr hrs.		
<b>2191.03T Power Equipment Internship</b>	<b>U</b>	<b>3</b>
Employment in power equipment industries; structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 2314T (241T), 2322T (202T), and 2324T (245T), and CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs.		
<b>2191.04T Agricultural Systems Technology Internship</b>	<b>U</b>	<b>2</b>
Agricultural Systems Technology occupational internship structured to provide occupational experiences; supervised by an industry employer and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 4 cr hrs.		
<b>2193T Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.		
<b>2194T Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.		
<b>2214T Fundamentals of Fluid Power and Components</b>	<b>U</b>	<b>4</b>
An introduction to the fluid power industry and the principles of fluid power system operation. Characteristics of operation and performance are investigated for pumps, motors, and valves. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. Prereq: GenMath 1030T, or Math placement level S or higher. This course is available for EM credit.		
<b>2221T Component Rebuilding</b>	<b>U</b>	<b>2</b>
Supervised laboratory experience with emphasis on developing and improving hydraulic component service competencies related to classroom and career activities. Prereq: 2214T (262T or 270T). Prereq or concur: 2224T (274T) and 2336T (273T). Not open to students with credit for 289.03T.		
<b>2224T Fluids, Filtration, and Fluid Conveyance</b>	<b>U</b>	<b>2</b>
Characteristics of hydraulic fluids; methods of filtering oils and of conveying pressurized fluids. Prereq: 2214T (262T or 270T). Not open to students with credit for 274T. This course is available for EM credit.		
<b>2226T Components and Hydraulic Circuits</b>	<b>U</b>	<b>2</b>
A study of advanced hydraulic component topics and of how fluid power components are integrated into a complete system, including performance characteristics and energy efficiency. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. Prereq: 2214T. Prereq or concur: GenMath 1145T. This course is available for EM credit.		
<b>2234T Basic Pneumatic Systems</b>	<b>U</b>	<b>2</b>
Principles, operation, maintenance, service, and application of pneumatic components and systems used for control and automation on industrial equipment. Prereq or concur: GenMath 1145T. This course is available for EM credit.		
<b>2238T Electrohydraulics and System Design</b>	<b>U</b>	<b>3</b>
A study of the interface and design applications of electricity and electronics with fluid power components integrated into a complete system, including performance characteristics and energy efficiency. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. Prereq: 2226T (272T). Not open to students with credit for 278T. This course is available for EM credit.		
<b>2240T Welding Technology</b>	<b>U</b>	<b>3</b>
A study of basic welding including materials, equipment, and techniques. Prereq: Not open to students with credit for 250T. This course is available for EM credit.		

<b>2242T Metals and Metal Manufacturing</b>	<b>U</b>	<b>2</b>
Introduction to metals and metal manufacturing; including materials, equipment, processes, and products. Prereq: GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.		
<b>2248T Instrumentation and Control Systems</b>	<b>U</b>	<b>4</b>
Techniques and equipment used for instrumentation of fluid power systems for the purposes of data acquisition and control. Prereq: 2238T (278T). Not open to students with credit for 279T. This course is available for EM credit.		
<b>2310T Building Science: Electrical and Lighting Systems</b>	<b>U</b>	<b>3</b>
Principles, equipment, and applications of building electrical and lighting systems with emphasis on energy and resource conservation and sustainability. Prereq: TecPhys 1150T. Not open to students with credit for 2150T.		
<b>2312T Engineering Technology Fundamentals</b>	<b>U</b>	<b>3</b>
An introduction to basic scientific and engineering concepts commonly encountered by engineering technicians emphasizing calculations, measurements, and instrumentation. This course is available for EM credit.		
<b>2314T Introduction to Power Equipment</b>	<b>U</b>	<b>3</b>
An introduction to the off-road machinery industries, their past and future, and the application of engineering principles to the associated equipment. Prereq: GenMath 1030T, or Math placement level S or higher. This course is available for EM credit.		
<b>2322T Basic Electricity and Electronics</b>	<b>U</b>	<b>3</b>
Principles of AC and DC electricity and electronics with emphasis on components, operations, and applications. Prereq: GenMath 1040T, Math 1050, or Math placement level R or higher. This course is available for EM credit.		
<b>2324T Engine Diagnosis and Repair</b>	<b>U</b>	<b>3</b>
An advanced study of multiple cylinder diesel engine diagnostic techniques including repair and rebuilding procedures. A grade of C or better required to meet graduation requirements for Power Equipment. Prereq: 2011T (240T) or 2314T (241T). Not open to students with credit for 245T. This course is available for EM credit.		
<b>2325T Analog and Digital Electronics</b>	<b>U</b>	<b>3</b>
An introduction to analog and digital electronics with emphasis on industry applications. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. Prereq: 2322T (202T). Not open to students with credit for 203T. This course is available for EM credit.		
<b>2331T Distributor Management</b>	<b>U</b>	<b>2</b>
Organization and operation of distributor marketing of mobile equipment and fluid power components and systems; emphasis on service and parts distribution. Prereq or concur: BusTec 1151T or AEDEcon 2001. This course is available for EM credit.		
<b>2332T Mobile Heating and Air Conditioning</b>	<b>U</b>	<b>1</b>
Principles, operation, maintenance, service, and repair of mobile heating and air conditioning components and systems. Prereq: GenMath 1030T, or Math placement level S or higher. This course is available for EM credit.		
<b>2334T Vehicle Electrical and Electronic Systems</b>	<b>U</b>	<b>2</b>
A study of electrical and electronic systems utilized in off-road machinery. A grade of C or better required to meet graduation requirements for Power Equipment. Prereq: 2322T. This course is available for EM credit.		
<b>2336T Methods of Power Transmission</b>	<b>U</b>	<b>2</b>
Comparison and evaluation of power transmission by mechanical, electrical, and fluidic means. Prereq: GenMath 1030T, or Math placement level S or higher. Prereq or concur: EngTech 2312T. This course is available for EM credit.		
<b>2338T Diesel Engine Systems</b>	<b>U</b>	<b>3</b>
A study of the principles, operation, and service of diesel engine systems with emphasis on fuel systems and engine controls. Prereq: 2324T. Prereq or concur: 2334T and TecPhys 1150T. This course is available for EM credit.		
<b>2345T Building Science: Mechanical Systems</b>	<b>U</b>	<b>3</b>
Principles, equipment, and applications of building mechanical systems with emphasis on energy and resource conservation and sustainability. Prereq: TecPhys 1150T. Not open to students with credit for 2150T. This course is available for EM credit.		



**2348T Performance of Mobile Power Units U 2**

A study of operator comfort and safety, ballast, traction, stability, hitching, engine power ratings, fuel efficiency and other factors affecting the performance and application of mobile power units. A grade of C or better required to meet graduation requirements for Power Equipment. Prereq: Completion of tractor/mobile equipment safety certification process. Prereq: 2336T (273T), 2338T (248T), TecPhys 1150T (102T). Not open to students with credit for 249T. This course is available for EM credit.

**2440T Site Development and Surveying U 4**

Principles of hydrology, soil mechanics, and surveying as applied to residential and commercial construction. Prereq or concur: 2110T or HortTec 2320T (235T); GenMath 1145T (145T) or Math Placement Level L, M, or N. Not open to students with credit for 253T. This course is available for EM credit.

**2600T Construction Safety & Health U 2**

Health and construction safety awareness; focusing on OSHA 30-hour training and certification, OSHA mandated recordkeeping, and corporate health plan development. Prereq: English 1110.01.

## Engineering Technology (BS)

**1200 Introduction to Engineering Technology U 1**

Introduction to the roles available in engineering technology, professional development planning for students pursuing this degree, and exposure to common elements in engineering technology. Course work will emphasize written and verbal communication skills. Prereq: Enrollment in the BSET program.

**1500 Manufacturing Processes I U 3**

History of manufacturing, tools and machines, and operations of the machine shop equipment. Opportunity to function individually and on teams, and communicate effectively to learn to work in groups to accomplish a task. The skills learned from this class are transferable to all areas of day to day professional life which makes it valuable in other contexts.

**1600 Engineering Graphics U 3**

Develop skills in graphic design and visualization through experience creating and interpreting 2D Computer Aided Drawings in AutoCAD. Explore various forms of technical graphics used in the field of Engineering Technology including facility layouts, piping and instrumentation diagrams, and electric schematics. Emphasis on utilizing technical graphics to solve Engineering Technology problems.

**2300 Electrical Circuits for Engineering Technology U 3**

Fundamentals of electrical circuits, measuring & analyzing data, & troubleshooting those circuits. Analysis of Direct Current (primarily) & Alternating Current circuits (less content) & effects of different components- resistors, capacitors, inductors, and other components in electrical circuits. DC/AC circuit dynamics that will be used in studies of industrial & electronic control applications. Prereq: Math 1155 or 1172, and Physics 1231 or 1251. Not open to students with credit for ECE 2300.

**2500 Manufacturing Processes II U 2**

Modern manufacturing processes. Design, create, and assembly of structure/objects by combining the manufacturing and graphical design knowledge. Opportunity to function individually and on teams and communicate effectively to learn to work in groups to accomplish a task. The skills are transferable to all areas of day-to-day professional life which makes it valuable in other contexts. Prereq: 1500.

**3800 Project Management for Engineering Technology U 3**

Project Management is a course that focuses on waterfall (PMBOK) and Agile methodologies for managing projects in the manufacturing industry. Emphasis is placed on project initiation, planning, executing, monitoring & controlling, and closing processes. This course will provide students with an overview of leadership roles and responsibilities, as well as interpersonal skills, conflict resolution. Prereq: 2500 and ISE 2040, or permission of instructor. Not open to students with credit for ISE 3800.

## English

**1109 Intensive Writing and Reading U 4**

Provides intensive practice in integrating academic reading and writing. Credit may not count toward graduation in some degree programs. Prereq: English Placement Test score of 6. Not open to students with credit for 1110.01 (110.01), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 052, 060, or 110.03, or equiv.

**1110.01 First-Year English Composition U 3**

Practice in the fundamentals of expository writing, as illustrated in the student's own writing & in the essays of professional writers. May be available as a service learning course with five hours community service required at the Lima campus only. Prereq: EduTL1902 (108.01) or 1902.04 (108.01), or English Placement Level 4. Not open to students with credit for 1109 (109.01 or 109.02), 1110.01 (non-DL version), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 1110.03 (110.03), 1167H (167H), 110.01. This course is available for EM credit. GE writing and comm course: level 1.

**1110.01H Honors First-Year English Composition U 3**

Provides intensive practice in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers. Prereq: Honors standing, and 28 or above on the English section of the ACT or 660 on the verbal section of the SAT; or permission of instructor. Not open to students with credit for 1110.01 (110.01), 1110.02 (110.02), 1110.02H (110.02H), 110.01H, 1110.03 (110.03), or 1167H (167H). This course is available for EM credit. GE writing and comm course: level 1.

**1110.02 First-Year English Composition U 3**

Practice in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers. Taught with an emphasis on literary texts. Prereq: EduTL 1902 or 1902.04, or English Placement Level 4. Not open to students with credit for 1109, 1110.01, 1110.01H, 1110.02 (non-DL version), 1110.02H, 1110.03, 1167H, or equiv. This course is available for EM credit. GE writing and comm course: level 1.

**1110.02H Honors First-Year English Composition U 3**

Provides intensive practice in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers. Taught with an emphasis on literary texts. Prereq: Honors standing, and 28 or above on the English section of the ACT or 660 on the verbal section of the SAT; or permission of instructor. Not open to students with credit for 1110.01 (110.01), 1110.01H (110.01H), 1110.02 (110.02), 110.02H, 1110.03 (110.03), or 1167H (167H). GE writing and comm course: level 1.

**1110.03 First-Year English Composition U 3**

Intensive practice in fundamentals of expository writing illustrated in the student's own writing and essays of professional writers; offered in a small class setting and linked with an individual tutoring component in its concurrent course, 1193. This course is available for EM credit only through the AP program. Prereq: 1109, or English Placement Level 5 (Placement Level 4 allowed if student requests service). Concur: 1193. Not open to students with credit for 1110.01 (110.01), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 1167H (167H), or 110.03, or equiv. GE writing and comm course: level 1.

**1167H First-Year Writing Seminar in the Humanities U 3**

Intensive critical reading and writing concerning central issues in the humanities. Prereq: Honors standing, and a 4 or 5 on the Advanced Placement Test; or permission of instructor. Not open to students with credit for 167H. GE cultures and ideas course.

**1193 Individual Studies U 1 - 4**

Intensive practice in the fundamentals of expository writing. Prereq: Permission of Director of First-Year Writing. Concur: 1110.03. Repeatable to a maximum of 6 or hrs or 6 completions. This course is graded S/U.

**2150 Career Preparation for English and Related Majors U 3**

This general elective course helps English majors and students from other Humanities disciplines to explore and prepare for careers after graduation. Students will analyze texts to gain a practical and theoretical understanding of the world of work. They will learn to identify their own strengths and preferences to guide their job activity and career choices.

**2194 Group Studies U 1 - 3**

Topic varies from semester to semester on subjects not otherwise covered by English courses. Prereq: 1110.01 (110.01), or equiv. Not open to students with 30 qtr or hrs for 294. Repeatable to a maximum of 18 or hrs or 18 completions.

**2201 Selected Works of British Literature: Medieval through 1800 U 3**

An introductory critical study of the works of major British writers from 800 to 1800. Prereq: 1110.01, or equiv. Not open to students with credit for 2201H. GE lit and diversity global studies course.

**2201H Selected Works of British Literature: Medieval through 1800 U 3**

An introductory critical study of the words of major British writers from 800 to 1800. Prereq: Honors standing, and 1110.01 (110.01) or equiv. Not open to students with credit for 2201 (201) or 201H. GE lit and diversity global studies course.

**2202 Selected Works of British Literature: 1800 to Present U 3**

An introductory critical study of the works of major British writers of the 19th and 20th centuries. Prereq: 1110 (110.01), or equiv. Not open to students with credit for 2202H (202H) or 202. GE lit and diversity global studies course.

**2202H Selected Works of British Literature: 1800 to Present U 3**

An introductory critical study of works of major British writers of the 19th and 20th centuries. Prereq: Honors standing, and 1110.01 (110.01), or equiv. Not open to students with credit for 2202 (202) or 202H. GE lit and diversity global studies course.

**2220 Introduction to Shakespeare U 3**

Study of selected plays designed to give an understanding of drama as theatrical art and as an interpretation of fundamental human experience. Prereq: 1110.01 (110.01), or equiv. Not open to students with credit for 2220H (220H) or 220. GE lit and diversity global studies course.

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<b>2220H</b>	<b>Introduction to Shakespeare</b>	<b>U</b>	<b>3</b>
Study of selected plays designed to give an understanding of drama as theatrical art and as an interpretation of fundamental human experience. Prereq: Honors standing, and 1110.01 (110.01) or equiv. Not open to students with credit for 2220 (220) or 220H. GE lit course and diversity global studies course.			
<b>2260</b>	<b>Introduction to Poetry</b>	<b>U</b>	<b>3</b>
Designed to help students understand and appreciate poetry through an intensive study of a representative group of poems. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 2260H (260H) or 260. GE lit course.			
<b>2260H</b>	<b>Introduction to Poetry</b>	<b>U</b>	<b>3</b>
Designed to help students understand and appreciate poetry through an intensive study of a representative group of poems. Prereq: Honors standing, and 1110.01 (110.01) or equiv. Not open to students with credit for 2260 (260) or 260H. GE lit course.			
<b>2261</b>	<b>Introduction to Fiction</b>	<b>U</b>	<b>3</b>
Examination of the elements of fiction -- plot, character, setting, narrative, perspective, theme, etc. -- and their various interrelations; comparisons with nonfictional narrative may be included. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 2261H (261H) or 261. GE lit course.			
<b>2261H</b>	<b>Introduction to Fiction</b>	<b>U</b>	<b>3</b>
Examination of the elements of fiction -- plot, character, setting, narrative, perspective, theme, etc. -- and their various interrelations; comparisons with nonfictional narrative may be included. Prereq: Honors standing, and 1110.01 (110.01) or equiv. Not open to students with credit for 2261 (261) or 261H. GE lit course.			
<b>2262</b>	<b>Introduction to Drama</b>	<b>U</b>	<b>3</b>
A critical analysis of selected dramatic masterpieces from Greek antiquity to the present, designed to clarify the nature and major achievements of Western dramatic art. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 2262H (262H) or 262. GE lit course.			
<b>2263</b>	<b>Introduction to Film</b>	<b>U</b>	<b>3</b>
Introduction to methods of reading film texts by analyzing cinema as technique, as system, and as cultural product. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 263. GE VPA course.			
<b>2264</b>	<b>Introduction to Popular Culture Studies</b>	<b>U</b>	<b>3</b>
Introduction to the analysis of popular culture texts. Prereq: 1110.01 (110.01). Not open to students with credit for 264 or CompStd 2264 (264). GE cultures and ideas course. Cross-listed in CompStd.			
<b>2265</b>	<b>Introductory Fiction Writing</b>	<b>U</b>	<b>3</b>
An introduction to the fundamentals of technique, craft, and composition; practice in the writing of fiction; and analysis and discussion of student work as well as published stories by masters of the genre. Prereq: 1110.			
<b>2266</b>	<b>Introductory Poetry Writing</b>	<b>U</b>	<b>3</b>
An introduction to the fundamentals of technique, craft, composition, and prosody; practice in the writing of poetry; and analysis and discussion of student work as well as published poems by established poets. Prereq: 1110.			
<b>2267</b>	<b>Introduction to Creative Writing</b>	<b>U</b>	<b>3</b>
An introduction to the writing of fiction, poetry, and creative nonfiction. Analysis and discussion of student work, with reference to the general methods and scope of all three genres. Prereq: 1110.01 or equiv.			
<b>2268</b>	<b>Introductory Creative Nonfiction Writing</b>	<b>U</b>	<b>3</b>
An introduction to the fundamentals of technique, craft, and composition; practice in the writing of creative nonfiction; and analysis and discussion of student work as well as published essays by masters of the many forms of creative nonfiction. Prereq: 1110.			
<b>2269</b>	<b>Digital Media Composing</b>	<b>U</b>	<b>3</b>
A composition course in which students analyze and compose digital media texts while studying complex forms and practices of textual production. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 269. GE VPA course.			
<b>2270</b>	<b>Introduction to Folklore</b>	<b>U</b>	<b>3</b>
Folklore theory and methods explored through engagement with primary sources: folktale, legend, jokes, folksong, festival, belief, art. Folklore Minor course. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 2270H, 270, CompStd 2350, or 2350H. GE cultures and ideas course. Cross-listed in CompStd 2350.			
<b>2270H</b>	<b>Introduction to Folklore</b>	<b>U</b>	<b>3</b>
Folklore theory and methods explored through engagement with primary sources: folktale, legend, jokes, folksong, festival, belief, and art. Folklore Minor course. Prereq: Honors standing, and 1110.01 (110.01), or equiv. Not open to students with credit for 2270 (270), CompStd 2350, or 2350H. GE cultures and ideas course. Cross-listed in CompStd 2350H.			

<b>2275</b>	<b>Thematic Approaches to Literature</b>	<b>U</b>	<b>3</b>
An introduction to literature through the examination of a major theme as treated in different genres and periods; topic varies by semester. Prereq: 1110.01 (110.01) or equiv. Not open to students with 10 qtr or hrs for 275. Repeatable to a maximum of 6 or hrs. GE lit course.			
<b>2276</b>	<b>Arts of Persuasion</b>	<b>U</b>	<b>3</b>
Introduces students to the study and practice of rhetoric and how arguments are shaped by technology, media, and cultural contexts. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 276. GE cultures and ideas course.			
<b>2277</b>	<b>Introduction to Disability Studies</b>	<b>U</b>	<b>3</b>
Foundational concepts and issues in disability studies; introduction to the sociopolitical models of disability. Prereq: 1110.01 or equiv. GE cultures and ideas course.			
<b>2280</b>	<b>The English Bible</b>	<b>U</b>	<b>3</b>
The Bible in English translation, with special attention to its literary qualities, conceptual content, and development within history. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 2280H (280H) or 280. GE lit course.			
<b>2280H</b>	<b>The English Bible</b>	<b>U</b>	<b>3</b>
The Bible in English translation, with special attention to its literary qualities, conceptual content, and development within history. Prereq: Honors standing, and 1110.01 (110.01) or equiv. Not open to students with credit for 2280 (280) or 280H. GE lit course.			
<b>2281</b>	<b>Introduction to African-American Literature</b>	<b>U</b>	<b>3</b>
A study of representative literary works by African-American writers from 1760 to the present. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 281 or AfAmAS 2281 (281). GE lit and diversity soc div in the US course. Cross-listed in AfAmAS.			
<b>2282</b>	<b>Introduction to Queer Studies</b>	<b>U</b>	<b>3</b>
Introduces and problematizes foundational concepts of the interdisciplinary field of queer studies, highlighting the intersections of sexuality with race, class, and nationality. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 282 or WGSS 2282 (282). GE cultures and ideas and diversity soc div in the US course. Cross-listed in WGSS.			
<b>2290</b>	<b>Colonial and U.S. Literature to 1865</b>	<b>U</b>	<b>3</b>
Introductory study of significant works of U.S. literature from its Colonial origins to 1865. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 290. GE lit course.			
<b>2291</b>	<b>U.S. Literature: 1865 to Present</b>	<b>U</b>	<b>3</b>
Introductory study of significant works of U.S. literature from 1865 to the present. Prereq: English 1110.01 (110.01), or equiv. Not open to student with credit for 291. GE lit course.			
<b>2367.01</b>	<b>Language, Identity, and Culture in the U.S. Experience</b>	<b>U</b>	<b>3</b>
Extends & refines expository writing & analytical reading skills, emphasizing recognition of intertextuality & reflection on compositional strategies on topics pertaining to education & pop culture in America. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: 1110.01 (110.01), and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English. Not open to students with credit for 2367.01H (367.01H), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.01H</b>	<b>Language, Identity, and Culture in the U.S. Experience</b>	<b>U</b>	<b>3</b>
Extends & refines expository writing & analytical reading skills emphasizing recognition of intertextuality & reflection on compositional strategies on topics pertaining to education & pop culture in America. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: Honors standing; and 1110.01 (110.01), and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English; or permission of instructor. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.01S</b>	<b>Language, Identity, and Culture in the U.S. Experience</b>	<b>U</b>	<b>3</b>
Extends & refines expository writing & analytical reading skills emphasizing recognition of intertextuality & reflection on compositional strategies on topics pertaining to education & pop culture in America. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: 1110.01 (110.01), and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.02</b>	<b>Literature in the U.S. Experience</b>	<b>U</b>	<b>3</b>
Discussion & practice of the conventions, practices, & expectations of scholarly reading of literature & expository writing on issues relating to diversity within the U.S. experience. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and lit (BS only) and diversity soc div in the US course.			

<b>2367.02H Literature in the U.S. Experience</b>	<b>U</b>	<b>3</b>
Discussion & practice of the conventions, practices, & expectations of scholarly reading of literature & expository writing on issues relating to diversity within the U.S. experience. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: Honors standing; and 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English; or permission of instructor. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and lit (BS only) and diversity soc div in the US course.		
<b>2367.03 Documentary in the U.S. Experience</b>	<b>U</b>	<b>3</b>
An intermediate course that extends and refines skills in critical reading and expository writing through analysis of written texts, video, and documentaries. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm course: level 2.		
<b>2367.03H Documentary in the U.S. Experience</b>	<b>U</b>	<b>3</b>
An intermediate course that extends and refines skills in critical reading and expository writing through analysis of written texts, video, and documentaries. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: Honors standing; and 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English; or permission of instructor. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm course: level 2.		
<b>2367.04 Technology and Science in the U.S. Experience</b>	<b>U</b>	<b>3</b>
Explores how technological changes impact our culture & relationships; students build & expand skills in rhetorical analysis & composition through experimentation with new forms of communicating. One 2367 (367) subdivision may be taken for credit. Prereq: 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, 367.04H, or equiv. GE writing and comm course: level 2.		
<b>2367.05 The U.S. Folk Experience</b>	<b>U</b>	<b>3</b>
Concepts of American folklore & ethnography; folk groups, tradition, & fieldwork methodology; how these contribute to the development of critical reading, writing, & thinking skills. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and diversity soc div in the US course.		
<b>2367.05H The U.S. Folk Experience</b>	<b>U</b>	<b>3</b>
Concepts of American folklore & ethnography; folk groups, tradition, & fieldwork methodology; how these contribute to the development of critical reading, writing, & thinking skills. Only one 2367 (367) decimal subdivision may be taken for credit. Prereq: Honors standing; and 1110.01 (110.01) or equiv, and Soph standing; or EM credit for 1110.01 (110.01) or equiv; or a declared major in English; or permission of instructor. Not open to students with credit for 2367.01 (367.01), 210, 267, 267H, 301, 303, or equiv. GE writing and comm: level 2 and diversity soc div in the US course.		
<b>2367.06 Composing Disability in the U.S.</b>	<b>U</b>	<b>3</b>
Extends & refines expository writing & analytical reading skills, emphasizing recognition of intertextuality & reflection on compositional strategies on topics pertaining to education & pop culture in America. Only one decimal subdivision of English 2367 may be taken for credit. Prereq: English 1110; and Soph standing, or a declared major in English. GE writing and comm: level 2 and diversity soc div in the US course.		
<b>2367.07S Literacy Narratives of Black Columbus</b>	<b>U</b>	<b>3</b>
This service-learning course focuses on collecting and preserving literacy narratives of Columbus-area Black communities. Through engagement with community partners, students refine skills in research, analysis, and composition; students synthesize information, create arguments about discursive/visual/cultural artifacts, and reflect on the literacy and life-history narratives of Black Columbus. Prereq: 1110 or equiv.; and Soph standing, or a declared major in English. Not open to students with credit for AiAmASt 2367.07S. GE writing and comm: level 2 and diversity soc div in the US course. Cross-listed in AiAmASt.		
<b>2367.08 The U.S. Experience: Writing About Video Games</b>	<b>U</b>	<b>3</b>
Emphasizes persuasive and researched writing, revision, and composing in various forms and media. Focusing on digital literacy, development of critical thinking skills and skill in producing analytical prose, students explore key conversations in the field of game studies and analyze a variety of types of video game writing. No prior knowledge of video games or game studies is required. Prereq: 1110 or equivalent; and Soph standing, or a declared major in English. GE writing and comm course: level 2.		
<b>2463 Introduction to Video Games Analysis</b>	<b>U</b>	<b>3</b>
An introduction to humanities-based methods of analyzing and interpreting video games in terms of form, genre, style, and theory. No background in video game play is necessary. All students will have regular opportunities for hands-on experience with different game types and genres in both the computer-based classroom and the English Department Video Game Lab. Prereq: English 1110. GE VPA course.		

<b>2464 Introduction to Comics Studies</b>	<b>U</b>	<b>3</b>
Study of sequential comics and graphic narrative and the formal elements of comics, how word and image compete and collaborate in comics to make meaning and how genre is activated and redeployed. Students analyze comics texts, articulate and defend interpretations of meaning and learn about archival research at OSU's Billy Ireland Cartoon Library and Museum. No background in comics is required. Prereq: 1110. GE VPA course.		
<b>3271 Structure of the English Language</b>	<b>U</b>	<b>3</b>
Students learn basic characteristics of English linguistics focusing on the basic building blocks of language; the sounds of English and how they are put together, word formation processes, and rules for combining words into utterances/sentences. Students investigate and explore linguistic variation, accents of American English, and the implications of language evaluation in educational settings. Prereq: 1110.01 (110.01). Not open to students with credit for 4570 (570), 6760 (760), 271, 669, 671, 2271, or Linguist 601. GE cultures and ideas course.		
<b>3273 Modernist Thought &amp; Culture, 1880-1945</b>	<b>U</b>	<b>3</b>
This is a team-taught course that surveys modern Western cultural history and its revolutionary developments in physics, genetics, philosophy, psychiatry, visual art, architecture, music, dance, and literature. The team-teaching format ensures that students will have the opportunity to approach modernist ideas and forms of expression from more than one disciplinary perspective. Prereq: English 1110 and any History 2000-level course, or permission of instructor. Not open to students with credit for History 3273. Cross-listed in History.		
<b>3304 Business and Professional Writing</b>	<b>U</b>	<b>3</b>
The study of principles and practices of business and professional writing. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 304.		
<b>3305 Technical Writing</b>	<b>U</b>	<b>3</b>
Study of principles and practices of technical writing. Emphasis on the style, organization, and conventions of technical and research reports, proposals, memoranda, professional correspondence, etc.. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 305.		
<b>3331 Thinking Theoretically</b>	<b>U</b>	<b>3</b>
Study of fundamental texts and practices informing contemporary understandings of theory in the humanities and social sciences. Prereq: 1110 or equiv. Not open to students with credit for ArtsSci 3331 (331).		
<b>3361 Narrative and Medicine</b>	<b>U</b>	<b>3</b>
Study of fictional and nonfictional narratives offering diverse perspectives on such medical issues as illness, aging, treatment, health and healing, and doctor-patient relationships. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 361. GE lit course.		
<b>3364 Special Topics in Popular Culture</b>	<b>U</b>	<b>3</b>
Focused study in reading popular culture texts, organized around a single theme, period, or medium. Prereq: 1110.01 (110.01) or equiv. Repeatable to a maximum of 6 or hrs. GE cultures and ideas course.		
<b>3372 Special Topics in Science Fiction or Fantasy</b>	<b>U</b>	<b>3</b>
Introduction to the tradition and practice of speculative writing. Provides students the opportunity to examine and compare works of science fiction and/or fantasy. Prereq: 1110. Repeatable to a maximum of 6 or hrs. GE lit course.		
<b>3378 Special Topics in Film and Literature</b>	<b>U</b>	<b>3</b>
Focuses on the relationship between film and literature; topics may include adaptation, cross-media themes and modes, influence of cinema on literature and vice versa. Prereq: 1110. Not open to students with 10 qtr cr hrs for 378. Repeatable to a maximum of 6 or hrs. GE cultures and ideas course.		
<b>3379 Methods for the Study of Writing, Rhetoric and Literacy</b>	<b>U</b>	<b>3</b>
Introduction to the interrelated fields of Writing, Rhetoric, and Literacy, familiarizing students with key concepts that underlie work in these interrelated fields and to the scholarly methods of WRL. Together, this discipline studies the ways people use language and other symbols to convey messages, persuade audiences, and create meaning, and how these practices are learned and taught. Prereq: 1110. Not open to students with credit for 2279.		
<b>3398 Methods for the Study of Literature</b>	<b>U</b>	<b>3</b>
Serves as the "Methods" course for the Literature and Creative Writing concentrations within the English major. Its purpose is to familiarize students with literary studies in such a way as to prepare them for advanced courses in all literary fields and the genres of Creative Writing. Required of English majors. Open to English majors only or others by dept permission. Prereq: 1110.01, and declared major in English. Sr students must have the permission of the Director of Undergraduate Studies. Not open to students with credit for 2298 or 3398H.		
<b>3405 Special Topics in Professional Communication</b>	<b>U</b>	<b>3</b>
Study of principles and practices in technical communication, technical editing, managerial communication, international business communication, visual rhetoric, writing for the web, and scientific writing. Prereq: A 2367 (367) second writing course. Not open to students with 10 qtr cr hrs for 405. Repeatable to a maximum of 6 or hrs.		

## 186 English

<b>3465</b>	<b>Special topics in Intermediate Fiction Writing</b>	<b>U</b>	<b>3</b>
For students who have experience with the basic elements of writing fiction. Special topics focus on particular aspects of the genre; advanced techniques are explored. Prereq: Grade of C or above in 2265. Repeatable to a maximum of 6 cr hrs.			
<b>3466</b>	<b>Special Topics in Intermediate Poetry Writing</b>	<b>U</b>	<b>3</b>
For students who have experience with the basic elements of writing poetry. Special topics focus on particular aspects of the genre; advanced techniques are explored. Prereq: Grade of C or above in 2266. Repeatable to a maximum of 6 cr hrs.			
<b>3467S</b>	<b>Issues and Methods in Tutoring Writing</b>	<b>U</b>	<b>3</b>
Theories and practices in tutoring and writing; explores writing-learning connections and prepares students to work as writing consultants/tutors for individuals and small writing groups. Prereq: 1110.01 (110.01) or equiv. Not open to students with credit for 467 or ArtsSci 3467S (HumCol 467). Cross-listed in ArtsSci.			
<b>3468</b>	<b>Special Topics in Intermediate Creative Nonfiction Writing</b>	<b>U</b>	<b>3</b>
For students who have experience with the basic elements of writing creative nonfiction. Special topics focus on particular aspects of the genre; advanced techniques are explored. Prereq: Grade of C or above in 2268. Repeatable to a maximum of 6 cr hrs.			
<b>3597.03</b>	<b>Environmental Citizenship</b>	<b>U</b>	<b>3</b>
Provides tools for environmental citizenship by teaching interdisciplinary perspectives on biophysical/sociocultural forces that shape environments. Addresses general processes through local case studies. Prereq: Not open to students with credit for 597.03 or Geog 3597.03 (597.03). GE cross-disciplinary seminar course. Cross-listed in Geog.			
<b>3662</b>	<b>An Introduction to Literary Publishing</b>	<b>U</b>	<b>3</b>
An introduction to the theory and practice of editing and publishing literature. Prereq: 2265, 2266, 2267, or 2268. Not open to students with credit for 5662.01 or 662.			
<b>4150</b>	<b>Cultures of Professional Writing</b>	<b>U</b>	<b>3</b>
Examine writing in various workplaces. Analyze writing discourse that shapes professional organizations. Explore ongoing technological and cultural shifts required of workplace writers and the role of digital media. Prereq: 1110 and any 2367. Not open to students with credit for HumCol 450.01, 450.02, 450.03, or CSTW 4150.			
<b>4189</b>	<b>Professional Writing Minor: Capstone Internship</b>	<b>U</b>	<b>3</b>
Students work onsite in an organization doing writing-related work and meet weekly to discuss related topics. Prereq: 4150 or CSTW 4150, and 2 courses in Professional Writing minor. Not open to students with more than 6 cr hrs of CSTW 4191. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>4321</b>	<b>Environmental Literatures, Cultures, and Media</b>	<b>U</b>	<b>3</b>
Examines past and present environmental issues from the perspective of English studies, including literary, rhetorical, and cultural analysis of texts and media. Prereq: 2367, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4400</b>	<b>Literary Locations</b>	<b>U</b>	<b>3</b>
Study of sites of literary importance, and texts connected with them in the British Isles, Ireland, and elsewhere. Concludes with 10-day visit to location. Taught in conjunction with English 5797. Prereq: Permission of instructor. Concur: 5797. Not open to students with 10 qtr or hrs for 595. Repeatable to a maximum of 6 cr hrs.			
<b>4410</b>	<b>Healthcare Experiences: Observing, Reading, Writing</b>	<b>U</b>	<b>3</b>
An elective for the Medical Humanities Minor, this course combines practical experience in a health care setting via volunteer work or shadowing with formal study of health, illness, and treatment in contemporary culture. It brings academic and practical learning into productive dialogue to illuminate relations between "theory" and "practice" in health care settings. Prereq: Completion of at least 9 credit hours toward the Medical Humanities Minor or permission of instructor.			
<b>4420</b>	<b>Capstone Course for Integrated Major in Mathematics and English</b>	<b>U</b>	<b>3</b>
Students combine the Mathematics and English knowledge and skills they have acquired in the integrated major through a capstone experience. Prereq: Sr standing in Integrated Major in Mathematics and English (IMME) Program, or permission of instructor. Not open to students with credit for Math 4420. Cross-listed in Math.			
<b>4450</b>	<b>Literature and Culture of London</b>	<b>U</b>	<b>3</b>
A month-long Education Abroad course focusing on past and present London as the center of British literature and culture. The course is taught by Ohio State faculty while students are resident in London. Offered in May term. 3 credit hours. Prereq: Permission of instructor.			
<b>4513</b>	<b>Introduction to Medieval Literature</b>	<b>U</b>	<b>3</b>
The study of masterpieces from the Middle Ages, chosen for their values in interpreting medieval culture as well as for their independent literary worth. Prereq: 6 cr hrs in English at 2000-3000 level, or permission of instructor. 5 qtr or hrs of 367 or 6 sem or hrs of 2367 in any subject are acceptable towards the 6 cr hrs. Not open to students with credit for 513.			

<b>4514</b>	<b>Middle English Literature</b>	<b>U</b>	<b>3</b>
A study of non-Chaucerian classics from late medieval England, such as Sir Gawain and the Green Knight, Piers Plowman, and The Book of Margery Kempe. Prereq: 6 cr hrs in English at 2000-3000 level, or permission of instructor. 5 qtr or hrs of 367 or 6 sem or hrs of 2367 in any subject are acceptable towards the 6 cr hrs. Not open to students with credit for 514.			
<b>4515</b>	<b>Chaucer</b>	<b>U</b>	<b>3</b>
A close study of Troilus and Criseyde and The Canterbury Tales as introduction to the artist and his period. Prereq: 6 cr hrs in English at 2000-3000 level, or permission of instructor. 5 qtr or hrs of 367 or 6 sem or hrs of 2367 in any subject are acceptable towards the 6 cr hrs. Not open to students with credit for 515 or 615.			
<b>4520.01</b>	<b>Shakespeare</b>	<b>U</b>	<b>3</b>
Critical examination of the works, life, theater, and contexts of Shakespeare. Prereq: 6 cr hrs in English at 2000-3000 level, or permission of instructor. 5 qtr or hrs of 367 or 6 sem or hrs of 2367 in any subject are acceptable towards the 6 cr hrs. Not open to students with credit for 520 or 520.01.			
<b>4520.02</b>	<b>Special Topics in Shakespeare</b>	<b>U</b>	<b>3</b>
Focused study of the works of Shakespeare in relation to a topic or critical problem. Prereq: 6 credit hours of English at the 2000-3000 level, or permission of instructor. 3 cr hrs for 2367 in any subject is acceptable towards the 6 cr hrs. Repeatable to a maximum of 9 cr hrs.			
<b>4521</b>	<b>Renaissance Drama</b>	<b>U</b>	<b>3</b>
Studies in English drama and theater from the early sixteenth century to 1660. Prereq: 6 credit hours of English at the 2000-3000 level, or permission of instructor. 5 qtr or hrs for 367 or 3 cr hrs for 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 621 or with 15 qtr or hrs of 521. Repeatable to a maximum of 9 cr hrs.			
<b>4522</b>	<b>Renaissance Poetry</b>	<b>U</b>	<b>3</b>
Studies in English poetry from the early sixteenth century to 1660. Prereq: 6 credit hours of English at the 2000-3000 level, or permission of instructor. 5 qtr or hrs for 367 or 3 cr hrs for 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 621 or with 15 qtr or hrs of 522. Repeatable to a maximum of 9 cr hrs.			
<b>4523</b>	<b>Special Topics in Renaissance Literature and Culture</b>	<b>U</b>	<b>3</b>
Study of the topics, themes, and problems in the literature and culture of sixteenth and seventeenth-century England. Prereq: 6 credit hours of English at the 2000-3000 level, or permission of instructor. 5 qtr or hrs for 367 or 3 cr hrs for 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 621 or with 15 qtr or hrs of 523. Repeatable to a maximum of 9 cr hrs.			
<b>4531</b>	<b>Restoration and 18th-Century Literature</b>	<b>U</b>	<b>3</b>
A selective survey of drama, poetry, novels, or other contemporary genres, such as the moral essay or autobiography. Prereq: 6 credit hours of English at the 2000-3000 level, or permission of instructor. 5 qtr or hrs for 367 or 3 cr hrs for 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 531.			
<b>4533</b>	<b>The Early British Novel: Origins to 1830</b>	<b>U</b>	<b>3</b>
Features the variety of novel forms emerging in 1660-1830, as well as relevant historical and contemporary theories of the novel, marketplace, reading, or interpretation. Prereq: 6 credit hours of English at the 2000-3000 level, or permission of instructor. 5 qtr or hrs for 367 or 3 cr hrs for 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 533.			
<b>4535</b>	<b>Special Topics in Restoration and Eighteenth Century British Literature and Culture</b>	<b>U</b>	<b>3</b>
Focused study of a major theme and/or critical problem arising from literature Restoration and/or eighteenth century Britain: race and enlightenment, crime and criminals, sex and the city, the culture of sensibility, transatlantic literary culture. Prereq: 10 qtr or hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr or hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 15 qtr or hrs for 535. Repeatable to a maximum of 9 cr hrs.			
<b>4540</b>	<b>Nineteenth-Century British Poetry</b>	<b>U</b>	<b>3</b>
Studies the origins of modern poetry in the years following the French Revolution in 1789 and its development throughout the nineteenth century. Prereq: 10 qtr or hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr or hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 540.			
<b>4542</b>	<b>The Nineteenth-Century British Novel</b>	<b>U</b>	<b>3</b>
Examines formal and thematic concerns in the novels of the nineteenth century in relation to the historical and cultural issues of the time. Prereq: 10 qtr or hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr or hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 641 or 542.			
<b>4543</b>	<b>20th-Century British Fiction</b>	<b>U</b>	<b>3</b>
A study of the development of British fiction after 1900, with emphasis on such major novelists as Conrad, Joyce, Lawrence, and Woolf. Prereq: 10 qtr or hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr or hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 643 or 543.			

<b>4547</b>	<b>20th-Century Poetry</b>	<b>U</b>	<b>3</b>
A study of twentieth-century British and American poetry, with emphasis on such major figures as Frost, Yeats, Stevens, Eliot, Williams, Auden, Bishop, and Langston Hughes. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 547.			
<b>4549</b>	<b>Modern Drama</b>	<b>U</b>	<b>3</b>
An historical and critical examination of the major developments, personalities, and achievements in the drama of Europe and America since the advent of Ibsen. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 549 or 649.			
<b>4550</b>	<b>Special Topics in Colonial and Early National Literature of the U.S.</b>	<b>U</b>	<b>3</b>
Focuses on themes and problems in literature and culture of colonial and early national U.S. Literature. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 550. Repeatable to a maximum of 6 cr hrs.			
<b>4551</b>	<b>Special Topics in 19th-Century U.S. Literature</b>	<b>U</b>	<b>3</b>
Focuses on themes and problems in U.S. literature and culture of the 19th-century. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs of 551. Repeatable to a maximum of 6 cr hrs.			
<b>4551E</b>	<b>Special Topics in 19th-Century U.S. Literature</b>	<b>U</b>	<b>3</b>
Honors embedded experience. Focuses on themes and problems in literature and culture of the 19th-century U.S. Prereq: Honors standing, and 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 551. Repeatable to a maximum of 6 cr hrs.			
<b>4552</b>	<b>Special Topics in American Poetry Through 1915</b>	<b>U</b>	<b>3</b>
This course focuses on themes and problems in the history of American poetry. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 552. Repeatable to a maximum of 6 cr hrs.			
<b>4553</b>	<b>20th-Century U.S. Fiction</b>	<b>U</b>	<b>3</b>
A study of American fiction after 1914, with emphasis on such major figures as Anderson, Fitzgerald, Hemingway, and Faulkner. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 553.			
<b>4554</b>	<b>English Studies and Global Human Rights</b>	<b>U</b>	<b>3</b>
Covers key human rights concepts and the role that humanities-based methods of analysis can play in the study of human rights. Examines how human rights are described in legal texts, cultural narratives, public discourses, and artistic representations. Also considers conflicting and contested representations, how they work, and how they are used in particular contexts. Prereq: 2367. GE diversity global studies.			
<b>4555</b>	<b>Rhetoric and Legal Argumentation</b>	<b>U</b>	<b>3</b>
Examines legal argumentation as a specialized type of rhetorical discourse; considers the relationship between rhetoric and legal discourse from historical, theoretical, and practical perspectives; covers key concepts in rhetorical theory and explores their relevance for analyzing and producing legal arguments; students apply theory in analysis and production of spoken and written legal arguments. Prereq: Any version of 2367.			
<b>4559</b>	<b>Introduction to Narrative and Narrative Theory</b>	<b>U</b>	<b>3</b>
Study of narrative in its different manifestations, e.g., novel, autobiography, film, legal testimony, and of theories of its form and significance. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 559.			
<b>4560</b>	<b>Special Topics in Poetry</b>	<b>U</b>	<b>3</b>
Focuses on special topics in the study of poetry. Examples include the dramatic monologue; epic and mock epic; the religious lyric; narrative poetry. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 560. Repeatable to a maximum of 6 cr hrs.			
<b>4561</b>	<b>Studies in Fictional and Nonfictional Narrative</b>	<b>U</b>	<b>3</b>
Focused study of specific subgenres of fiction, nonfiction, or relations between such subgenres. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 561. Repeatable to a maximum of 6 cr hrs.			

<b>4562</b>	<b>Studies in Literature and the Other Arts</b>	<b>U</b>	<b>3</b>
Studies in English literature in an interdisciplinary context. Period and context will vary. Possible topics: modernism and music, romanticism and painting, Elizabethan literature and iconography. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 596. Repeatable to a maximum of 6 cr hrs.			
<b>4563</b>	<b>Contemporary Literature</b>	<b>U</b>	<b>3</b>
A study of poetry and prose written since approximately 1960. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 563.			
<b>4564.01</b>	<b>Major Author in Medieval and Renaissance British Literature</b>	<b>U</b>	<b>3</b>
Intensive study of one of the major authors of the period. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 564.01.			
<b>4564.02</b>	<b>Major Author in 18th- and 19th-Century British Literature</b>	<b>U</b>	<b>3</b>
Intensive study of one of the major authors of the period. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 564.02.			
<b>4564.03</b>	<b>Major Author in American Literature to 1900</b>	<b>U</b>	<b>3</b>
Intensive study of one of the major authors of the period. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 564.03.			
<b>4564.04</b>	<b>Major Author in 20th-Century Literature in English</b>	<b>U</b>	<b>3</b>
Intensive study of one of the major authors of the period. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 564.04.			
<b>4565</b>	<b>Advanced Fiction Writing</b>	<b>U</b>	<b>3</b>
Advanced workshop in the writing of fiction. This is a class for serious students of creative writing. Admission is by portfolio submission to the instructor. Prereq: 2265 and permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>4566</b>	<b>Advanced Poetry Writing</b>	<b>U</b>	<b>3</b>
Advanced workshop in the writing of poetry. This is a class for serious students of creative writing. Admission is by portfolio submission to the instructor. Prereq: 2266 and permission of instructor. Not open to students with 9 sem cr hrs of 4566 and/or 4566E. Repeatable to a maximum of 9 cr hrs.			
<b>4567S</b>	<b>Rhetoric and Community Service: A Writing Seminar</b>	<b>U</b>	<b>3</b>
Service learning course. Critical examination of organizational rhetorics; production of texts in various media for various purposes and audiences as indicated by host organizations. Prereq: 1110.01 (110.01) or equiv, and a 2367 (367) second writing course. Not open to students with 10 qtr cr hrs for 567. Repeatable to a maximum of 6 cr hrs. GE service learning course.			
<b>4568</b>	<b>Advanced Creative Nonfiction Writing</b>	<b>U</b>	<b>3</b>
Advanced workshop in the writing of creative nonfiction. This is a class for serious students of creative writing. Admission is by portfolio submission to the instructor. Prereq: 2268 and permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>4569</b>	<b>Digital Media and English Studies</b>	<b>U</b>	<b>3</b>
Critical examination of the intersections between specific areas or problems in English studies and the emergent technologies used to acquire and create knowledge in the discipline. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 569. Repeatable to a maximum of 6 cr hrs.			
<b>4571</b>	<b>Special Topics in English Linguistics</b>	<b>U</b>	<b>3</b>
Special topics vary, including American English; the sociology of American dialects; language and style. Prereq: 6 cr hrs of English at 2000-3000 level, or permission of instructor. 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Repeatable to a maximum of 6 cr hrs.			
<b>4572</b>	<b>English Grammar and Usage</b>	<b>U</b>	<b>3</b>
An examination of terminology and structures traditionally associated with the study of English grammar and usage rules, especially problematic ones, governing edited written American English. Prereq: 6 cr hrs of English at 2000-3000 level, or permission of instructor. 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs.			

## 188 English

<b>4573.01</b>	<b>Rhetorical Theory and Criticism</b>	<b>U</b>	<b>3</b>
Examination of persuasive strategies in a representative selection of genres, such as oratory, news articles, editorials, essays, advertisements, fiction, digital media, and film. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 573.01.			
<b>4573.02</b>	<b>Rhetoric and Social Action</b>	<b>U</b>	<b>3</b>
Examination of persuasive strategies in social interaction, such as social movements, political protests, cultural trends, rituals and ceremonies, and everyday practices. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 573.02.			
<b>4574</b>	<b>History and Theories of Writing</b>	<b>U</b>	<b>3</b>
Study of the origins, definitions, and development of writing, including historical, cultural, technological, theoretical, and/or ideological issues. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 574.			
<b>4575</b>	<b>Special Topics in Literary Forms and Themes</b>	<b>U</b>	<b>3</b>
Focuses on special topics in literary forms and themes. Examples include ironic forms; the Trojan War in English literature; the hero and the anti-hero; pastoralism and romance. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 575. Repeatable to a maximum of 6 cr hrs.			
<b>4576.01</b>	<b>History of Critical Theory I: Plato to Aestheticism</b>	<b>U</b>	<b>3</b>
Study of the history of literary criticism and of special topics in critical theory; study of the developments and basic texts in literary criticism and critical theory from Plato to Oscar Wilde. Prereq: Ten quarter credits or six semester credit hours for English courses at the 2000 or 3000 level or permission of instructor. Five quarter credits for 367 or 3 semester credits for 2367 in any subject is acceptable towards the 6 credit hours. Not open to students with credit for 576.01.			
<b>4576.02</b>	<b>History of Critical Theory II: 1900 to Present</b>	<b>U</b>	<b>3</b>
Study of the history of literary criticism and of special topics in critical theory; study of the developments and basic texts in literary criticism and critical theory from 1900 to the present. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 576.02.			
<b>4576.03</b>	<b>History of Critical Theory III: Issues and Movements</b>	<b>U</b>	<b>3</b>
Study of the history of literary criticism and of special topics in critical theory; study of selected issues or movements in critical theory; topics may include feminist theory, postmodernism, narrative theory, mass culture, and queer theory. Prereq: 6 cr hrs of English courses at the 2000-3000 level, or permission of instructor. A 2367 course in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 576.03.			
<b>4577.01</b>	<b>Folklore I: Groups and Communities</b>	<b>U</b>	<b>3</b>
Study of folk groups/communities, folklore genres, issues/methods in folklore studies. How expressive repertoires shape identity, negotiate conflict, and process change in both established groups and new communities. Folklore Minor course. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 577.01. Repeatable to a maximum of 6 cr hrs.			
<b>4577.02</b>	<b>Folklore II: Genres, Form, Meaning, and Use</b>	<b>U</b>	<b>3</b>
Study of folk groups/communities, folklore genres, issues/methods in folklore studies. Study of the relationship between cultural forms, community interpretations, and social uses. Folklore Minor course. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 577.02. Repeatable to a maximum of 6 cr hrs.			
<b>4577.03</b>	<b>Folklore III: Issues and Methods</b>	<b>U</b>	<b>3</b>
Study of folk groups & communities, folklore genres, & issues & methods in folklore studies. Theoretical, methodological, & policy concerns in contemporary folklore research. Folklore Minor course. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 577.03. Repeatable to a maximum of 6 cr hrs.			
<b>4578</b>	<b>Special Topics in Film</b>	<b>U</b>	<b>3</b>
Examination of particular topics, themes, genres, or movements in cinema; topics may include particular directors (Orson Welles), periods (The Sixties), genres (horror). Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 15 qtr cr hrs for 578 or 9 sem cr hrs for 4578 or 4578H. Repeatable to a maximum of 9 cr hrs.			

<b>4578H</b>	<b>Special Topics in Film</b>	<b>U</b>	<b>3</b>
Examination of particular topics, themes, genres, or movements in cinema; topics may include particular directors (Orson Welles), periods (The Sixties), genres (horror). Prereq: Honors program, and 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 15 qtr cr hrs for 578 or 9 sem cr hrs for 4578 or 4578H. Repeatable to a maximum of 9 cr hrs.			
<b>4580</b>	<b>Special Topics in LGBTQ Literatures and Cultures</b>	<b>U</b>	<b>3</b>
Focuses on themes and issues in LGBTQ literature and culture. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 15 qtr cr hrs for 580 or 9 sem cr hrs for 4580. Repeatable to a maximum of 9 cr hrs.			
<b>4581</b>	<b>Special Topics in U.S. Ethnic Literatures</b>	<b>U</b>	<b>3</b>
Study of selected issues or forms in U.S. ethnic literatures and cultures. Topic varies. Examples: Native American autobiography, Asian American poetry, Latino/a novel. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 581 or 6 sem cr hrs for 4581. Repeatable to a maximum of 6 cr hrs.			
<b>4582</b>	<b>Special Topics in African-American Literature</b>	<b>U</b>	<b>3</b>
Focuses on themes in African American Literature. Topic varies. Examples: Neo-slave narratives; the Harlem Renaissance; literature by African-American women. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs or 6 sem cr hrs of 4582 (582) or AfAmASt 4582 (582). Repeatable to a maximum of 6 cr hrs. Cross-listed in AfAmASt.			
<b>4583</b>	<b>Special Topics in World Literature in English</b>	<b>U</b>	<b>3</b>
Study of literatures written in English and produced outside of the U.S. and Britain; topics include colonial/postcolonial writing, regional literature, theoretical and historical approaches, genres. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 10 qtr cr hrs for 583. Repeatable to a maximum of 6 cr hrs.			
<b>4584</b>	<b>Special Topics in Literacy Studies</b>	<b>U</b>	<b>3</b>
Foundational study of the history, theory, and issues of a special topic in literacy studies; topics may include race, popular culture, gender, or globalization. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with 15 qtr cr hrs or 9 sem cr hrs of 4585 (585.01) or CompStd 4564 (585.01). Repeatable to a maximum of 9 cr hrs. Cross-listed in CompStd 4564.			
<b>4586</b>	<b>Studies in American Indian Literature and Culture</b>	<b>U</b>	<b>3</b>
Focused study of a topic in American Indian literary and cultural studies. Prereq: 1110 (110) or equiv. Not open to students with 10 qtr cr hrs of 586. Repeatable to a maximum of 6 cr hrs.			
<b>4587</b>	<b>Studies in Asian American Literature and Culture</b>	<b>U</b>	<b>3</b>
Focuses on problems and themes in Asian American literature and culture from the late nineteenth century to the present. Topic varies. Examples: Asian American Literature and Popular Culture; Empire and Sexuality in Asian American Literature. Prereq: 1110 (110) or equiv. Not open to students with 10 qtr cr hrs or 6 sem cr hrs for English 4587 (587) or CompStd 4803 (483). Repeatable to a maximum of 6 cr hrs. Cross-listed in CompStd 4803.			
<b>4588</b>	<b>Studies in Latino/a Literature and Culture</b>	<b>U</b>	<b>3</b>
Focused study of a topic in Latino/a literary and cultural studies. Novels, short stories, plays, poetry, graphic novels, and films by and about US Latinos in their specific social and historical contexts. Prereq: 1110 (110) or equiv. Not open to students with 10 qtr cr hrs or 6 sem cr hrs of 4588 (588) or CompStd 4804 (544). Repeatable to a maximum of 6 cr hrs. Cross-listed in CompStd 4804.			
<b>4589</b>	<b>Studying the Margins: Language, Power, and Culture</b>	<b>U</b>	<b>3</b>
English 4589 will provide students a chance to hear the voices and study the cultural expressions of those groups that have been systematically underrepresented. Students will study the marginalization and oppression of particular groups in the context of historical, ideological and political forces, paying due attention to power relations within the nation-state. Prereq: 6 cr hrs or 10 qtr hrs of English at the 2000-3000 level. Additionally, 3 cr hrs of 2367 or 5 qtr hrs of 367 in any subject is acceptable toward the total hours; or permission of instructor.			
<b>4590.01H</b>	<b>The Middle Ages</b>	<b>U</b>	<b>3</b>
Intensive study of the middle ages. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.01H.			
<b>4590.02H</b>	<b>The Renaissance</b>	<b>U</b>	<b>3</b>
Intensive study of the Renaissance. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.02H.			

<b>4590.03H The Long Eighteenth Century</b>	<b>U</b>	<b>3</b>
An intensive study of major British authors and works 1660-1820, their role in literary history, and the theory/criticism that illuminates them. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.03H.		
<b>4590.04H Romanticism</b>	<b>U</b>	<b>3</b>
Intensive study of Romanticism. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.04H.		
<b>4590.05H The Later 19th Century</b>	<b>U</b>	<b>3</b>
Intensive study of the later 19th century. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.05H.		
<b>4590.06H The Modern Period</b>	<b>U</b>	<b>3</b>
Intensive study of The Modern Period. Prereq: Honors standing, or permission of the instructor. Not open to students with credit for 590.06H.		
<b>4590.07H Literature in English after 1945</b>	<b>U</b>	<b>3</b>
Intensive study of literature in English after 1945. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.07H.		
<b>4590.08H U.S. and Colonial Literature</b>	<b>U</b>	<b>3</b>
Intensive study of a topic in colonial and U.S. literature. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 590.08H.		
<b>4591.01H Special Topics in the Study of Creative Writing</b>	<b>U</b>	<b>3</b>
A seminar in literary forms and themes, with a significant creative writing component. Prereq: Honors standing, and 2265 (265) or 2266 (266) or 2268 (268); or permission of instructor. Not open to students with 10 qtr cr hrs for 591.01H. Repeatable to a maximum of 6 cr hrs.		
<b>4591.02H Special Topics in the Study of Rhetoric</b>	<b>U</b>	<b>3</b>
Study of rhetorical theories and practices through examination of social communities, texts, movements, and periods both past and present. Prereq: Honors standing, and 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. Not open to students with 10 qtr cr hrs for 591.02H. Repeatable to a maximum of 6 cr hrs.		
<b>4592 Special Topics in Women in Literature and Culture</b>	<b>U</b>	<b>3</b>
Using feminist perspectives, students will learn to analyze literature and other cultural works (film, television, digital media) written by or about women. Time period and topic vary. Prereq: 6 cr hrs of English at 2000-3000 level, or permission of instructor. 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Repeatable to a maximum of 6 cr hrs.		
<b>4595 Literature and Law</b>	<b>U</b>	<b>3</b>
Exploration of some fundamental questions underlying the cultural representation of legal order, particularly the nature of legal authority and of individual resistance to it. Prereq: 10 qtr cr hrs or 6 cr hrs of English at 2000-3000 level, or permission of instructor. 5 qtr cr hrs in 367 or 3 cr hrs in 2367 in any subject is acceptable towards the 6 cr hrs. Not open to students with credit for 593.		
<b>4597.01 The Disability Experience in the Contemporary World</b>	<b>U</b>	<b>3</b>
Global, national, and local issues of disability in the contemporary world; interdisciplinary approach combines historical, literary, philosophical, scientific, and service-oriented analysis of experience of disability. Prereq: 1110.01 (110.01) or equiv, and Jr or Sr standing. Not open to students with credit for 597.01. GE cross-disciplinary seminar course.		
<b>4597.02 American Regional Cultures in Transition</b>	<b>U</b>	<b>3</b>
Explores American regional cultures to consider the relationship between tradition and change, how to compare cultures, and how politics and economics shape conceptions of culture. Folklore Minor course. Prereq: 1110.01 (110.01) or equiv, and Jr or Sr standing. Not open to students with credit for 597.02. GE cross-disciplinary seminar course.		
<b>4597.04H Interdisciplinary Approaches to Narrative in the Contemporary World</b>	<b>U</b>	<b>3</b>
Interdisciplinary study of narrative's role in contemporary culture. Prereq: Honors standing, and 1110.01 (110.01) or equiv, and Jr or Sr standing; or permission of instructor. Not open to students with credit for 597.04H. GE cross-disciplinary seminar course.		
<b>4800 Story Development for Film and Television</b>	<b>U</b>	<b>3</b>
In this course, students will harness their pre-existing critical thinking skills and historical knowledge to develop a personal statement-of-purpose that enables them to generate and refine their own original film and television concepts for subsequent production projects. Prereq: Permission of instructor. Not available for students with credit for FilmStd 4194 (Au14) or FilmStd 4800. Cross-listed in FilmStd.		

<b>4998 Undergraduate Research in English</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research in variable topics; independent study. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.		
<b>4998H Honors Undergraduate Research in English</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research in variable topics; independent study. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.		
<b>4999 Undergraduate Research: Thesis</b>	<b>U</b>	<b>1 - 18</b>
A program of reading arranged for each student, with individual conferences, reports, paper and/or thesis. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.		
<b>4999H Honors Research</b>	<b>U</b>	<b>1 - 18</b>
A program of reading arranged for each student, with individual conferences, reports, and honors thesis. Open only to candidates for distinction in English. Prereq: Honors standing, and Sr standing, and permission of the professor under whose supervision the work is to be completed. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.		
<b>5189S Comparative Studies Field School</b>	<b>U G</b>	<b>3</b>
Introduction to ethnographic field methods (participant-observation, writing field notes, photography, interviewing), archiving, and public humanities. An introduction to fieldwork is followed by a field experience (where students will reside together in local housing) followed by accessioning, exhibition planning and reflection. Maximum credit hours include those for CompStd 5189S. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Cross-listed in CompStd.		
<b>5191 Internship in English Studies</b>	<b>U G</b>	<b>1 - 3</b>
Students may receive credit for internships across a wide variety of career fields including, but not limited to, the arts and nonprofit administration; creative, business, and technical writing; communications, marketing and public relations; consulting; education; human resources; law and politics; media production; publishing; sales; social services and counseling; and technology services. Prereq: Permission of instructor. Not open to students with 15 qtr cr hrs for 689. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.		
<b>5193 Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Students may register for individual directed study under this number for work not normally offered in courses. Prereq: Permission of instructor and department undergraduate or graduate committee. Not open to students with 10 qtr cr hrs for 693. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.		
<b>5194 Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group studies. Prereq: Permission of instructor. Not open to students with 15 qtr cr hrs for 694 or 9 sem cr hrs for 5194. Repeatable to a maximum of 9 cr hrs or 9 completions.		
<b>5612 The History of the Book in Modernity</b>	<b>U G</b>	<b>3</b>
This course explores books and other printed matter as material objects rather than neutral containers for texts, literally judging books by their covers, examining production, design, and materials as well as the myriad uses to which books been put in the world over the past two centuries. The course is embedded in the collections of OSU's Rare Books and Manuscripts Library.		
<b>5662.02 Literary Publishing</b>	<b>U G</b>	<b>3</b>
Theory and practice of editing and publishing literature. Prereq: 2265 (265), 2266 (266), or 2268 (268), and permission of instructor. Not open to students with credit for 5662 (662). This course is graded S/U.		
<b>5664 Studies in Graphic Narrative</b>	<b>U G</b>	<b>3</b>
Introduction to advanced study in graphic narrative and theory; thematic topics include the contemporary graphic novel, graphic autobiography, the history of comics, and comics journalism. Prereq: 9 cr hrs at the 3000, 4000, or 5000-level in English, or permission of instructor. Repeatable to a maximum of 9 cr hrs.		
<b>5710.01 Introduction to Old English Language and Literature</b>	<b>U G</b>	<b>3</b>
Introduction to Old English language, followed by selected readings in Anglo-Saxon prose and verse texts. Prereq: 9 cr hrs at the 3000, 4000, or 5000 level, or equiv work in allied departments, or permission of instructor. Not open to students with credit for 5710.01 (710) or 5710.02.		
<b>5710.02 Introduction to Old English Language and Literature</b>	<b>U G</b>	<b>3</b>
Introduction to Old English language, followed by selected readings in Anglo-Saxon prose and verse texts. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 5710.01 (710) or 5710.02. This course is graded S/U.		

## 190 English

<b>5720.01</b>	<b>Graduate Studies in Shakespeare</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of Shakespeare. Prereq: 10 qtr cr hrs of 300, 400, or 500 level, or 9 sem cr hrs of 3000, 4000, or 5000 level, or Grad standing, or permission of instructor. Not open to students with 5 qtr cr hrs for 720 or 6 sem cr hrs for 5720.01 or 5720.02. Repeatable to a maximum of 6 cr hrs.			
<b>5720.02</b>	<b>Graduate Studies in Shakespeare</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of Shakespeare. Prereq: 10 qtr cr hrs at the 300, 400, or 500 level, or 9 sem cr hrs at the 3000, 4000, or 5000 level, or Grad standing, or permission of instructor. Not open to students with 5 qtr cr hrs for 720 or 6 sem cr hrs for 5720.01 or 5720.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5721.01</b>	<b>Graduate Studies in Renaissance Drama</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of English drama from the early sixteenth century to 1660. Prereq: 10 qtr cr hrs at 300, 400, or 500 level, or 9 sem cr hrs at 3000, 4000, or 5000 level, or Grad standing, or permission of instructor. Not open to students with more than 5 qtr cr hrs for 720 or 6 sem cr hrs for 5721.01 or 5721.02. Repeatable to a maximum of 6 cr hrs.			
<b>5721.02</b>	<b>Graduate Studies in Renaissance Drama</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of English drama from the early sixteenth century to 1660. Prereq: Grad standing, or permission of instructor. Not open to students with more than 5 qtr cr hrs for 720 or 6 sem cr hrs for 5721.01 or 5721.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5722.01</b>	<b>Graduate Studies in Renaissance Poetry</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of English poetry from the early sixteenth century to 1660. Prereq: 10 qtr cr hrs in English at the 300, 400, or 500 level, or 9 sem cr hrs at the 3000, 4000, or 5000 level, or permission of instructor. Not open to students with 6 sem cr hrs for 5722.01 or 5722.02. Repeatable to a maximum of 6 cr hrs.			
<b>5722.02</b>	<b>Graduate Studies in Renaissance Poetry</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of English poetry from the early sixteenth century to 1660. Prereq: Grad standing, or permission of instructor. Not open to students with 6 cr hrs for 5722.01 or 5722.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5723.01</b>	<b>Graduate Studies in Renaissance Literature and Culture</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of the literature and culture of sixteenth- and seventeenth-century England. Prereq: 10 qtr cr hrs in English at the 300, 400, or 500 level, or 9 sem cr hrs at the 3000, 4000, or 5000 level, or Grad standing, or permission of instructor. Not open to students with 6 qtr cr hrs for 5723.01 or 5723.02. Repeatable to a maximum of 6 cr hrs.			
<b>5723.02</b>	<b>Graduate Studies in Renaissance Literature and Culture</b>	<b>U G</b>	<b>3</b>
Study of topics, themes, and problems in advanced studies of the literature and culture of sixteenth- and seventeenth-century England. Prereq: Grad standing, or permission of instructor. Not open to students with 6 qtr cr hrs for 5723.01 or 5723.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 27</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Arranged. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Prereq: Permission of instructor. Not open to students with 45 qtr cr hrs for 697 or 27 sem cr hrs for 5797. Repeatable to a maximum of 27 cr hrs or 27 completions. This course is progress graded (S/U).			
<b>5804</b>	<b>Analyzing Language in Social Media</b>	<b>U G</b>	<b>3</b>
Course gives students experience analyzing language in social media. It covers theoretical issues arising in digital communication and provides hands-on practice at computational data analysis, applicable across fields. Students gain an understanding of the sociolinguistic dynamics of online communication and the technical skills to conduct research on them. Team-taught w/ faculty in Linguistics. Prereq: Not open to students with credit for Ling 5804. Cross-listed in Ling.			
<b>5892</b>	<b>Workshop</b>	<b>U G</b>	<b>1 - 3</b>
Workshop Prereq: Permission of instructor. Not open to students with 12 cr hrs for 5892 (692). Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group Studies Prereq: Grad standing, or permission of instructor. Not open to students with 9 sem cr hrs or 15 qtr cr hrs for 6194 (894). Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>6410</b>	<b>Introduction to Graduate Study in Medical Humanities and Social Sciences</b>	<b>G</b>	<b>3</b>
Study of medicine from the perspective of the humanities and social sciences; emphasis on how these perspectives complicate an understanding of medicine as pure science. Prereq: Grad standing.			

<b>6662</b>	<b>Literary Publishing</b>	<b>G</b>	<b>3</b>
Theory and practice of editing and publishing literature for MFA students in creative writing. Prereq: MFA (Creative Writing) standing, or permission of instructor. Not open to students with credit for 662 or 5662.01.			
<b>6700.01</b>	<b>Introduction to Graduate Study in English</b>	<b>G</b>	<b>3</b>
Introduction to bibliography, research methods, critical theory, and the principles of literary criticism for advanced work in English studies. Required of all English doctoral candidates. Prereq: Permission of Director of Graduate Studies. Not open to students with credit for 6787.02, 700, or 800.			
<b>6700.02</b>	<b>Introduction to Graduate Study in English</b>	<b>G</b>	<b>3</b>
Introduction to bibliography, research methods, critical theory, and the principles of literary criticism for advanced work in English studies. Required of all English doctoral candidates. Prereq: Permission of Director of Graduate Studies. Not open to students with credit for 6787.01, 700, or 800. This course is graded S/U.			
<b>6716.01</b>	<b>Introduction to Graduate Study in the Middle Ages</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in medieval literature, 1300-1500. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6716.01 (716) or 6716.02.			
<b>6716.02</b>	<b>Introduction to Graduate Study in the Middle Ages</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in medieval literature, 1300-1500. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6716.01 (716) or 6716.02. This course is graded S/U.			
<b>6718.01</b>	<b>Introduction to Graduate Study in Chaucer</b>	<b>G</b>	<b>3</b>
Introduction to advanced study in Chaucer, with a focus on The Canterbury Tales and Troilus and Criseyde. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6718.01 (718) or 6718.02.			
<b>6718.02</b>	<b>Introduction to Graduate Study in Chaucer</b>	<b>G</b>	<b>3</b>
Introduction to advanced study in Chaucer, with a focus on The Canterbury Tales and Troilus and Criseyde. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6718.01 (718) or 6718.02. This course is graded S/U.			
<b>6736.01</b>	<b>Introduction to Graduate Study in the Restoration and 18th Century</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in British literature, 1660-1800. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6736.01 (736) or 6736.02.			
<b>6736.02</b>	<b>Introduction to Graduate Study in the Restoration and 18th Century</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in British literature, 1660-1800. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6736.01 (736) or 6736.02. This course is graded S/U.			
<b>6746.01</b>	<b>Introduction to Graduate Study in British Literature of the Romantic Period</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in British literature of the Romantic period. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6746.01 (746) or 6746.02.			
<b>6746.02</b>	<b>Introduction to Graduate Study in British Literature of the Romantic Period</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in British literature of the Romantic period. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6746.01 (746) or 6746.02. This course is graded S/U.			
<b>6747.01</b>	<b>Introduction to Graduate Study in British Literature of the Victorian Period</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in British Victorian literature. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6747.01 (747) or 6747.02.			
<b>6747.02</b>	<b>Introduction to Graduate Study in British Literature of the Victorian Period</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in British Victorian literature. Prereq: Grad standing or permission of instructor. Not open to students with credit for 6747.01 (747) or 6747.02. This course is graded S/U.			
<b>6750.01</b>	<b>Introduction to Graduate Study in Literacy</b>	<b>G</b>	<b>3</b>
Introduction to advanced study of the development of reading and writing, the study of literacy; attention to historical, theoretical, ideological, and technological issues and change. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6750.01 (750) or 6750.02.			



<b>6750.02</b>	<b>Introduction to Graduate Study in Literacy</b>	<b>G</b>	<b>3</b>
Introduction to advanced study of the development of reading and writing, the study of literacy; attention to historical, theoretical, ideological, and technological issues and change. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6750.01 (750) or 6750.02. This course is graded S/U.			
<b>6751.01</b>	<b>Intro to Graduate Study in Folklore I: The Philology of the Vernacular</b>	<b>G</b>	<b>3</b>
Introduction to the canonical folklore genres and the history of folklore as a discipline. Why and how do we examine the vernacular? Folklore GIS course. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6751.11, 770.01, or CompStd 6750.01 (770.01). Cross-listed in CompStd 6750.01.			
<b>6751.02</b>	<b>Intro to Graduate Study in Folklore II: Fieldwork and the Ethnography of Communication</b>	<b>G</b>	<b>3</b>
Intro to fieldwork & ethnology in humanities: interviewing, participant observation, ethics, ethnographic representation. Ethnography of communication as an approach to community-based expressive forms. Folklore GIS course. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 770.02, 770.03, 6751.22, CompStd 770.02, 770.03, or 6750.02. Cross-listed in CompStd 6750.02.			
<b>6751.11</b>	<b>Intro to Graduate Study in Folklore I: The Philology of the Vernacular</b>	<b>G</b>	<b>3</b>
Introduction to the canonical folklore genres and the history of folklore as a discipline. Why and how do we examine the vernacular? Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6751.01 (770.01) or CompStd 6750.01 (770.01). This course is graded S/U.			
<b>6751.22</b>	<b>Intro to Graduate Study in Folklore II: Fieldwork and the Ethnography of Communication</b>	<b>G</b>	<b>3</b>
Introduction to fieldwork and ethnology in the humanities: interviewing, participant observation, ethics, ethnographic representation. The ethnography of communication as an approach to community-based expressive forms. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 770.02, 770.03, 6751.02, CompStd 770.02, 770.03, or 6750.02. This course is graded S/U.			
<b>6755.01</b>	<b>Introduction to Graduate Study in American Literature, Origins to 1840</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in early American literature. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6755.01 (755) or 6755.02.			
<b>6755.02</b>	<b>Introduction to Graduate Study in American Literature, Origins to 1840</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in early American literature. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6755.01 (755) or 6755.02. This course is graded S/U.			
<b>6756.01</b>	<b>Introduction to Graduate Study in American Literature, 1840-1914</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in American literature, 1840-1914. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6756.01 (756) or 6756.02.			
<b>6756.02</b>	<b>Introduction to Graduate Study in American Literature, 1840-1914</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in American literature, 1840-1914. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6756.01 (756) or 6756.02. This course is graded S/U.			
<b>6757.01</b>	<b>Introduction to Graduate Study in African-American Literature, 1746-1900</b>	<b>G</b>	<b>3</b>
A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1746 to 1900. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6757.11, 757.01, or AfAmAST 6757.01 (757.01). Cross-listed in AfAmAST.			
<b>6757.02</b>	<b>Introduction to Graduate Study in African-American Literature, 1900 to Present</b>	<b>G</b>	<b>3</b>
A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1900 to the present. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6757.22, 757.02, or AfAmAST 6757.02 (757.02). Cross-listed in AfAmAST.			
<b>6757.11</b>	<b>Introduction to Graduate Study in African-American Literature, 1746-1900</b>	<b>G</b>	<b>3</b>
A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1746 to 1900. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6757.01 (757.01) or AfAmAST 6757.01 (757.01). This course is graded S/U.			

<b>6757.22</b>	<b>Introduction to Graduate Study in African-American Literature, 1900 to Present</b>	<b>G</b>	<b>3</b>
A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1900 to the present. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6757.02 (757.02) or AfAmAST 6757.02 (757.02). This course is graded S/U.			
<b>6758.01</b>	<b>Introduction to Graduate Study in U.S. Ethnic Literature and Culture</b>	<b>G</b>	<b>3</b>
Introduction to graduate study of representative literature and culture of a U.S. ethnic group, such as American-Indian, Jewish-American, Latino/a. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem cr hrs or 10 qtr cr hrs for 6758.01 (758) or 6758.02. Repeatable to a maximum of 6 cr hrs.			
<b>6758.02</b>	<b>Introduction to Graduate Study in U.S. Ethnic Literature and Culture</b>	<b>G</b>	<b>3</b>
Introduction to graduate study of representative literature and culture of a U.S. ethnic group, such as American-Indian, Jewish-American, Latino/a. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr cr hrs or 6 sem cr hrs for 6758.01 (758) or 6758.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>6760.01</b>	<b>Introduction to Graduate Study in Postcolonial Literature and Theory</b>	<b>G</b>	<b>3</b>
Introduction to graduate-level study of representative examples of the literary, cultural, and theoretical texts that inform postcolonial studies. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 760, 6760.01, or 6760.02.			
<b>6760.02</b>	<b>Introduction to Graduate Study in Postcolonial Literature and Theory</b>	<b>G</b>	<b>3</b>
Introduction to graduate-level study of representative examples of the literary, cultural and theoretical texts that inform postcolonial studies. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 760, 6760.01, or 6760.02. This course is graded S/U.			
<b>6761.01</b>	<b>Introduction to Graduate Study in Narrative and Narrative Theory</b>	<b>G</b>	<b>3</b>
Study of narrative in its different manifestations, e.g., novel, autobiography, film, legal testimony, and of theories of its form and significance. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6761.02 or 761.			
<b>6761.02</b>	<b>Introduction to Graduate Study in Narrative and Narrative Theory</b>	<b>G</b>	<b>3</b>
Study of narrative in its different manifestations, e.g., novel, autobiography, film, legal testimony, and of theories of its form and significance. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6761.01 or 761. This course is graded S/U.			
<b>6763.01</b>	<b>Graduate Workshop in Poetry</b>	<b>G</b>	<b>3</b>
A graduate-level workshop in the writing of poetry. Prereq: MFA standing, or permission of instructor. Not open to students with 20 qtr hrs for 763 or equivalent. Repeatable to a maximum of 12 cr hrs.			
<b>6763.02</b>	<b>Graduate Workshop in Poetry</b>	<b>G</b>	<b>3</b>
A graduate-level workshop in the writing of poetry for MFA students in fiction or creative non-fiction with limited experience as poets. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr hrs for 763 or equivalent. Repeatable to a maximum of 12 cr hrs.			
<b>6764</b>	<b>Graduate Workshop in Screenwriting</b>	<b>G</b>	<b>3</b>
Students with expertise in fiction- or creative nonfiction-writing or poetry will learn the art and craft of screenwriting and complete their first full-length screenplays. Prereq: English MFA standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>6765.01</b>	<b>Graduate Workshop in Fiction</b>	<b>G</b>	<b>3</b>
A graduate-level workshop in the writing of fiction. Prereq: MFA standing, or permission of instructor. Not open to students with 20 qtr hrs for 765 or equivalent. Repeatable to a maximum of 12 cr hrs.			
<b>6765.02</b>	<b>Graduate Workshop in Fiction</b>	<b>G</b>	<b>3</b>
A graduate-level workshop in the writing of fiction for MFA students in poetry or creative non-fiction with limited experience as fiction writers. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr hrs for 765 or equivalent. Repeatable to a maximum of 12 cr hrs.			
<b>6766.01</b>	<b>Introduction to Graduate Study in 20th Century Literature, 1900-1945</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in literature written in English 1900-1945. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6766.02 or 766.			

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<b>6766.02</b>	<b>Introduction to Graduate Study in 20th Century Literature, 1900-1945</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism in literature written in English 1900-1945. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 766 or equivalent. This course is graded S/U.			
<b>6767.01</b>	<b>Introduction to Graduate Study in 20th Century Literature, 1945-Present</b>	<b>G</b>	<b>3</b>
Introduction to advanced study in 20th-century literature written in English since 1945. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6767.02 or 767.			
<b>6767.02</b>	<b>Introduction to Graduate Study in 20th Century Literature, 1945-Present</b>	<b>G</b>	<b>3</b>
Introduction to advanced study in 20th-century literature written in English since 1945. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6767.01 or 767. This course is graded S/U.			
<b>6768</b>	<b>Graduate Workshop in Creative Nonfiction</b>	<b>G</b>	<b>3</b>
A graduate-level workshop in the writing of creative nonfiction. Prereq: MFA standing, or permission of instructor. Not open to students with 20 qtr hrs for 768 or equivalent. Repeatable to a maximum of 6 cr hrs.			
<b>6769</b>	<b>Graduate Workshop in Creative Writing (Special Topics)</b>	<b>G</b>	<b>3</b>
A special topics course in the writing of fiction, poetry, and/or creative nonfiction. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr hrs for 769 or equivalent. Repeatable to a maximum of 6 cr hrs.			
<b>6776.02</b>	<b>From 1900 to the Contemporary Period</b>	<b>G</b>	<b>3</b>
A two-course sequence (with English 6776.01) in literary criticism from Plato to contemporary theory. Major texts and issues from 1900 to the present. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 676. 776.02, 6776.02, or 6776.22.			
<b>6776.22</b>	<b>From 1900 to the Contemporary Period</b>	<b>G</b>	<b>3</b>
A two-course sequence in literary criticism from Plato to contemporary theory. Major texts and issues from 1900 to the present. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 676, 776.02, 6776.02, or 6776.22. This course is graded S/U.			
<b>6778.01</b>	<b>Introduction to Graduate Study in Film and Film Theory</b>	<b>G</b>	<b>3</b>
An advanced survey of the methodologies, contexts, and development of film and film theory. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6778.01 (778) or 6778.02.			
<b>6778.02</b>	<b>Introduction to Graduate Study in Film and Film Theory</b>	<b>G</b>	<b>3</b>
An advanced survey of the methodologies, contexts, and development of film and film theory. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6778.01 (778) or 6778.02. This course is graded S/U.			
<b>6779.01</b>	<b>Introduction to Graduate Study in Rhetoric: Classical to Early Renaissance</b>	<b>G</b>	<b>3</b>
Provides foundational study in the history and theory of rhetoric from classical Greece to early modern Europe. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6779.01 (779.01) or 6779.11.			
<b>6779.02</b>	<b>Introduction to Graduate Study in Rhetoric: Renaissance to 20th Century</b>	<b>G</b>	<b>3</b>
Provides foundational study in the history and theory of rhetoric from the Renaissance to the present. 6779.01 (779.01) recommended. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6779.02 (779.02) or 6779.22.			
<b>6779.11</b>	<b>Introduction to Graduate Study in Rhetoric: Classical to Early Renaissance</b>	<b>G</b>	<b>3</b>
Provides foundational study in the history and theory of rhetoric from classical Greece to early modern Europe. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6779.01 (779.01) or 6779.11. This course is graded S/U.			
<b>6779.22</b>	<b>Introduction to Graduate Study in Rhetoric: Renaissance to 20th Century</b>	<b>G</b>	<b>3</b>
Provides foundational study in the history and theory of rhetoric from the Renaissance to the present. 6779.01 (779.01) recommended. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6779.02 (779.02) or 6779.22. This course is graded S/U.			
<b>6780.01</b>	<b>Current Theory and Practice in the Teaching of Writing</b>	<b>G</b>	<b>3</b>
Modern theories of composition; topics include: invention, style, sentence combining, evaluation, and the composing process. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6780.01 (870) or 6780.22.			

<b>6780.02</b>	<b>Current Theory and Practice in the Teaching of Writing</b>	<b>G</b>	<b>3</b>
Modern theories of composition; topics include: invention, style, sentence combining, evaluation, and the composing process. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6780.01 (870) or 6780.22. This course is graded S/U.			
<b>6781</b>	<b>Introduction to the Teaching of First-Year English</b>	<b>G</b>	<b>3</b>
Introduction to the theory and practice of teaching first-year English. Required of new GTA's in English. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 781 or 881.01. This course is graded S/U.			
<b>6788.01</b>	<b>Studies in the Theory and Practice of Imaginative Writing</b>	<b>G</b>	<b>3</b>
Instruction in imaginative writing as a method for studying scholarly issues in English, e.g., disability narratives, ethnicity and literature, gender and genre. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 788, or equiv. Repeatable to a maximum of 6 cr hrs.			
<b>6788.02</b>	<b>Studies in the Theory and Practice of Imaginative Writing</b>	<b>G</b>	<b>3</b>
Instruction in imaginative writing as a method for studying scholarly issues in English, e.g., disability narratives, ethnicity and literature, gender and genre. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 788, or equiv. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>6789.01</b>	<b>Introduction to Graduate Study in Digital Media</b>	<b>G</b>	<b>3</b>
Explores how scholars in English studies use computer technologies and multiple media to make meaning, represent and analyze information, teach, and conduct research. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6789.01 (789) or 6789.02.			
<b>6789.02</b>	<b>Introduction to Graduate Study in Digital Media</b>	<b>G</b>	<b>3</b>
Explores how scholars in English studies use computer technologies and multiple media to make meaning, represent and analyze information, teach, and conduct research. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 6789.01 (789) or 6789.02. This course is graded S/U.			
<b>6795.01</b>	<b>Introduction to Research Methods in Rhetoric and Composition</b>	<b>G</b>	<b>3</b>
Introduction to the research methods most widely used in rhetoric, composition, and literacy studies. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 795 or equiv.			
<b>6795.02</b>	<b>Introduction to Research Methods in Rhetoric and Composition</b>	<b>G</b>	<b>3</b>
Introduction to the research methods most widely used in rhetoric, composition, and literacy studies. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 795 or equiv. This course is graded S/U.			
<b>6998</b>	<b>Graduate Research in English</b>	<b>G</b>	<b>1 - 18</b>
Graduate research. Arranged. Prereq: Permission of Director of Grad Studies. Not open to students with 30 qtr or hrs for 6996 or 18 sem cr hrs for 6998. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>7350.01</b>	<b>Theorizing Folklore I: Tradition and Transmission</b>	<b>G</b>	<b>3</b>
The transmission of cultural forms through time and space across social networks, with special attention to the dynamics of conservation, and innovation, reflexivity, and habit. Folklore GIS course. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 7350.11, 870, or CompStd 7350.01 (792). Cross-listed in CompStd.			
<b>7350.02</b>	<b>Theorizing Folklore II: The Ethnography of Performance</b>	<b>G</b>	<b>3</b>
Performance as a heightened mode of communication characteristic of vernacular cultural process, studied in the context of ongoing social interaction. Folklore GIS course. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 7350.22, 870, or CompStd 7350.02 (792). Cross-listed in CompStd.			
<b>7350.03</b>	<b>Theorizing Folklore III: Differentiation, Identification, and the Folk</b>	<b>G</b>	<b>3</b>
Cultural form as a social tool for both differentiation and integration. "Folklore" and other metacultural concepts in the history of modernity. Folklore GIS course. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 870 or CompStd 7350.03 (792). Cross-listed in CompStd.			
<b>7350.11</b>	<b>Theorizing Folklore I: Tradition and Transmission</b>	<b>G</b>	<b>3</b>
The transmission of cultural forms through time and space across social networks, with special attention to the dynamics of conservation, and innovation, reflexivity, and habit. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 7350.01 (870) or CompStd 7350.01 (792). This course is graded S/U.			

<b>7350.22</b>	<b>Theorizing Folklore II: The Ethnography of Performance</b>	<b>G</b>	<b>3</b>
Performance as a heightened mode of communication characteristic of vernacular cultural process, studied in the context of ongoing social interaction. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 7350.02 (870) or CompStd 7350.02 (792). This course is graded S/U.			
<b>7350.33</b>	<b>Theorizing Folklore III: Differentiation, Identification, and the Folk</b>	<b>G</b>	<b>3</b>
Cultural form as a social tool for both differentiation and integration. "Folklore" and other metacultural concepts in the history of modernity. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 7350.03 (870) or CompStd 7350.03 (792). This course is graded S/U.			
<b>7817.01</b>	<b>Seminar in Early Medieval English Literature</b>	<b>G</b>	<b>3</b>
Topics include: Beowulf and its background; Old English poetry exclusive of Beowulf. Prereq: 5710 (710), or equiv. Not open to students with 10 qtr cr hrs for 817 or 6 sem qtr cr hrs for 7817.01 or 7817.02. Repeatable to a maximum of 6 cr hrs.			
<b>7817.02</b>	<b>Seminar in Early Medieval English Literature</b>	<b>G</b>	<b>3</b>
Topics include: Beowulf and its background; Old English poetry exclusive of Beowulf. Prereq: 5710 (710) or equivalent. Not open to students with 6 sem hrs of 7817.01 or 7817.02, or 10 qtr hrs of 817. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7818.01</b>	<b>Seminar in Later Medieval Literature</b>	<b>G</b>	<b>3</b>
Topics include: Poetry of the alliterative revival; medieval English drama; fifteenth-century non-dramatic literature. Prereq: Grad standing, or permission of instructor. Not open to students with 12 sem hrs of 7818.01 or 7818.02, or 20 qtr hrs of 818. Repeatable to a maximum of 12 cr hrs.			
<b>7818.02</b>	<b>Seminar in Later Medieval Literature</b>	<b>G</b>	<b>3</b>
Topics include: Poetry of the alliterative revival; medieval English drama; fifteenth-century non-dramatic literature. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr cr hrs for 818 or 12 sem cr hrs for 7818.01 or 7818.02. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>7820.01</b>	<b>Seminar in Shakespeare</b>	<b>G</b>	<b>3</b>
An intensive consideration of selected problems in the scholarly study of Shakespeare. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem hrs of 7820.01 or 7820.02, or 10 qtr hrs of 820. Repeatable to a maximum of 6 cr hrs.			
<b>7820.02</b>	<b>Seminar in Shakespeare</b>	<b>G</b>	<b>3</b>
An intensive consideration of selected problems in the scholarly study of Shakespeare. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem hrs of 7820.01 or 7820.02, or 10 qtr hrs of 820. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7827.01</b>	<b>Seminar in English Renaissance Literature</b>	<b>G</b>	<b>3</b>
Topics include: Renaissance and early seventeenth-century poetry; Spenser; Renaissance drama; Milton; Renaissance prose. Prereq: Grad standing, or permission of instructor. Not open to students with 12 sem hrs of 7827.01 or 7827.02, or 20 qtr hrs of 827. Repeatable to a maximum of 12 cr hrs.			
<b>7827.02</b>	<b>Seminar in English Renaissance Literature</b>	<b>G</b>	<b>3</b>
Topics include: Renaissance and early seventeenth-century poetry; Spenser; Renaissance drama; Milton; Renaissance prose. Prereq: Grad standing, or permission of instructor. Not open to students with 12 sem hrs of 7827.01 or 7827.02, or 20 qtr hrs of 827. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7837.01</b>	<b>Studies in 18th Century Genre</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism of one of the following: eighteenth-century fiction, poetry, drama, or non-fiction. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 737, 7837.01 or 7837.02.			
<b>7837.02</b>	<b>Studies in 18th Century Genre</b>	<b>G</b>	<b>3</b>
Introduction to advanced study and current scholarship and criticism of one of the following: eighteenth-century fiction, poetry, drama, or non-fiction. Prereq: Grad standing or permission of instructor. Not open to students with credit for 737, 7837.01 or 7837.02. This course is graded S/U.			
<b>7838.01</b>	<b>Seminar in Critical Issues in the Restoration and 18th Century</b>	<b>G</b>	<b>3</b>
An intensive consideration of a selected critical problem or a selected intellectual focus in the scholarly study of Restoration and/or eighteenth-century literature and culture. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr cr hrs for 838 or 12 sem cr hrs for 7838.01 or 7838.02. Repeatable to a maximum of 12 cr hrs.			
<b>7838.02</b>	<b>Seminar in Critical Issues in the Restoration and 18th Century</b>	<b>G</b>	<b>3</b>
An intensive consideration of a selected critical problem or a selected intellectual focus in the scholarly study of Restoration and/or eighteenth-century literature and culture. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr cr hrs for 838 or 12 sem cr hrs for 7838.01 or 7838.02. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			

<b>7840.01</b>	<b>Seminar in English Romantic Literature</b>	<b>G</b>	<b>3</b>
Literary romanticism in relation to contemporary intellectual and political movements; topic varies from year to year. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr cr hrs for 840 or 9 sem cr hrs for 7840.01 or 7840.02. Repeatable to a maximum of 9 cr hrs.			
<b>7840.02</b>	<b>Seminar in English Romantic Literature</b>	<b>G</b>	<b>3</b>
Literary romanticism in relation to contemporary intellectual and political movements; topic varies from year to year. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr cr hrs for 840 or 9 sem cr hrs for 7840.01 or 7840.02. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7844.01</b>	<b>Seminar in Victorian Literature</b>	<b>G</b>	<b>3</b>
Topics include: Victorian poetry; nineteenth-century non-fictional prose; nineteenth-century novels. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr cr hrs for 844 or 9 sem cr hrs for 7844.01 or 7844.02. Repeatable to a maximum of 9 cr hrs.			
<b>7844.02</b>	<b>Seminar in Victorian Literature</b>	<b>G</b>	<b>3</b>
Topics include: Victorian poetry; nineteenth-century non-fictional prose; nineteenth-century novels. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr cr hrs for 844 or 9 sem cr hrs for 7844.01. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7850.01</b>	<b>Seminar in U.S. Literatures before 1900</b>	<b>G</b>	<b>3</b>
Topics include: American authors (Poe, Melville); history of genres, forms, and media (poetry, U.S. serial fiction); intensive study of 'periods' (the early Republic, the 1890s). Prereq: Grad standing, or permission of instructor. Not open to students with credit for 850. Repeatable to a maximum of 12 cr hrs.			
<b>7850.02</b>	<b>Seminar in U.S. Literatures before 1900</b>	<b>G</b>	<b>3</b>
Topics include: American authors (Poe, Melville); history of genres, forms, and media (poetry, U.S. serial fiction); intensive study of 'periods' (the early Republic, the 1890s). Prereq: Grad standing, or permission of instructor. Not open to students with credit for 850. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7851.01</b>	<b>Seminar in Critical Approaches to Black Literatures</b>	<b>G</b>	<b>3</b>
A close reading of major literary critical discourses that have shaped and determined the course of black literary production in Africa, North America, and the Caribbean. Prereq: A course in AfAmAST literature, or permission of instructor. Not open to students with 6 sem hrs of 7851.01 or 7851.02, 10 qtr hrs of 851, or AfAmAST 7851 (851). Repeatable to a maximum of 6 cr hrs. Cross-listed in AfAmAST 7851.			
<b>7851.02</b>	<b>Seminar in Critical Approaches to Black Literatures</b>	<b>G</b>	<b>3</b>
A close reading of major literary critical discourses that have shaped and determined the course of black literary production in Africa, North America, and the Caribbean. Prereq: A course in AfAmAST literature, or permission of instructor. Not open to students with 6 sem hrs of 7851.01 or 7851.02, 10 qtr hrs of 851, or AfAmAST 7851 (851). Repeatable to a maximum of 6 cr hrs. This course is graded S/U. Cross-listed in AfAmAST 7851.			
<b>7858.01</b>	<b>Seminar in U.S. Ethnic Literatures and Culture</b>	<b>G</b>	<b>3</b>
Advanced work in U.S. ethnic literatures and cultures through study of a specific issue, theme, or problem of central concern to the field. Topic varies. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem hrs of 7858.01 or 7858.02, or 10 qtr hrs of 858. Repeatable to a maximum of 6 cr hrs.			
<b>7858.02</b>	<b>Seminar in U.S. Ethnic Literatures and Culture</b>	<b>G</b>	<b>3</b>
Advanced work in U.S. ethnic literatures and cultures through study of a specific issue, theme, or problem of central concern to the field. Topic varies. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem hrs of 7858.01 or 7858.02, or 10 qtr hrs of 858. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7860.01</b>	<b>Seminar in 20th Century British and/or American Literature</b>	<b>G</b>	<b>3</b>
Problems, forms, and themes in twentieth-century British and/or American literature; study of particular twentieth-century British and/or American writers. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr cr hrs for 860, 860.01, 860.02, or 860.03 or 9 sem cr hrs for 7860.01 or 7860.02. Repeatable to a maximum of 9 cr hrs.			
<b>7860.02</b>	<b>Seminar in 20th Century British and/or American Literature</b>	<b>G</b>	<b>3</b>
Problems, forms, and themes in twentieth-century British and/or American literature; study of particular twentieth-century British and/or American writers. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr cr hrs for 860 or 9 sem cr hrs 7860.01 or 7860.02. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7861.01</b>	<b>Studies in Narrative and Narrative Theory</b>	<b>G</b>	<b>3</b>
Seminar in narrative theory and practice; focus on an approach (e.g., feminist narratology), a problem (ethics), or subcategory of narrative (the graphic novel). Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr cr hrs for 861 or 12 sem cr hrs for 7861.01 or 7861.02. Repeatable to a maximum of 12 cr hrs.			

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<b>7861.02</b>	<b>Studies in Narrative and Narrative Theory</b>	<b>G</b>	<b>3</b>
Seminar in narrative theory and practice; focus on an approach (e.g., feminist narratology), a problem (ethics), or subcategory of narrative (the graphic novel). Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr or hrs for 861 or 12 sem cr hrs for 7861.01 or 7861.02. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7864.01</b>	<b>Postcolonial/Transnational Literatures</b>	<b>G</b>	<b>3</b>
Topics include postcolonial and transnational literature in English; theories of colonial, postcolonial, and transnational literature and culture. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr or hrs for 864 or 9 sem cr hrs for 7864.01 or 7864.02. Repeatable to a maximum of 9 cr hrs.			
<b>7864.02</b>	<b>Postcolonial/Transnational Literatures</b>	<b>G</b>	<b>3</b>
Topics include postcolonial and transnational literature in English; theories of colonial, postcolonial, and transnational literature and culture. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr or hrs for 864 or 9 sem cr hrs for 7864.01 or 7864.02. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7871.01</b>	<b>Seminar in the Forms of Literature</b>	<b>G</b>	<b>3</b>
A graduate seminar in the forms of poetry, fiction, and/or creative nonfiction. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr or hrs for 781, or equiv. Repeatable to a maximum of 12 cr hrs.			
<b>7871.02</b>	<b>Seminar in the Forms of Literature</b>	<b>G</b>	<b>3</b>
A graduate seminar in the forms of poetry, fiction, and/or creative nonfiction. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr or hrs for 871 or equiv. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7872.01</b>	<b>Studies in the English Language</b>	<b>G</b>	<b>3</b>
Advanced English language study; topics vary. Prereq: Not open to students with 6 sem cr hrs for 7872.01 or 7872.02. Repeatable to a maximum of 6 cr hrs.			
<b>7872.02</b>	<b>Studies in the English Language</b>	<b>G</b>	<b>3</b>
Advanced English language study; topics vary. Prereq: Not open to students with 6 sem cr hrs for 7872.01 or 7872.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7876.01</b>	<b>Seminar in Critical Theory</b>	<b>G</b>	<b>3</b>
A review of theory and practice in some of the principal forms of literary analysis; focus on a single theoretical movement or a single critical problem. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 876 or 6 sem cr hrs for 7876.01 or 7876.02. Repeatable to a maximum of 6 cr hrs.			
<b>7876.02</b>	<b>Seminar in Critical Theory</b>	<b>G</b>	<b>3</b>
A review of theory and practice in some of the principal forms of literary analysis; focus on a single theoretical movement or a single critical problem. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 876 or 6 sem cr hrs for 7876.01 or 7876.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7878.01</b>	<b>Seminar in Film &amp; Media Studies</b>	<b>G</b>	<b>3</b>
An intensive study of selected issues, themes, and forms in Film & Media Studies. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 878 or 6 sem cr hrs for 7878.01 or 7878.02. Repeatable to a maximum of 6 cr hrs.			
<b>7878.02</b>	<b>Seminar in Film &amp; Media Studies</b>	<b>G</b>	<b>3</b>
An intensive study of selected issues, themes, and forms in Film & Media Studies. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 878 or 6 sem cr hrs for 7878.01 or 7878.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7879.01</b>	<b>Seminar in Rhetoric</b>	<b>G</b>	<b>3</b>
Rhetoric of a particular period; major figures in rhetoric, rhetorical analysis of literature. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 879 or 6 sem cr hrs for 7879.01 or 7879.02. Repeatable to a maximum of 6 cr hrs.			
<b>7879.02</b>	<b>Seminar in Rhetoric</b>	<b>G</b>	<b>3</b>
Rhetoric of a particular period; major figures in rhetoric, rhetorical analysis of literature. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 879 or 6 sem cr hrs for 7879.01 or 7879.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7880.01</b>	<b>Seminar in Composition</b>	<b>G</b>	<b>3</b>
Invention; the composing process and revision; evaluating and responding to writing; discourse analysis. Prereq: Grad standing or permission of instructor. Not open to students with 10 qtr or hrs for 880 or 6 sem cr hrs for 7880.01 or 7880.02. Repeatable to a maximum of 6 cr hrs.			
<b>7880.02</b>	<b>Seminar in Composition</b>	<b>G</b>	<b>3</b>
Invention; the composing process and revision; evaluating and responding to writing; discourse analysis. Prereq: Grad standing or permission of instructor. Not open to students with 10 qtr or hrs for 880 or 6 sem cr hrs for 7880.01 or 7880.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			

<b>7881.02</b>	<b>Teaching Basic Writing</b>	<b>G</b>	<b>3</b>
Theory and practice in the teaching of basic writing. Prereq: 781 or equiv, or permission of instructor. Not open to students with credit for 881.02, 7881.02 or equiv. Repeatable to a maximum of 9 cr hrs.			
<b>7881.04</b>	<b>Teaching Business and Professional Communication</b>	<b>G</b>	<b>3</b>
Theoretical foundations of and teaching techniques for major units in business communication, designed to prepare graduate students to do research in and to teach business and professional writing. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 881.04, 7881.44 or equiv.			
<b>7881.22</b>	<b>Teaching Basic Writing</b>	<b>G</b>	<b>3</b>
Theory and practice in the teaching of basic writing. Prereq: 6781 or equiv., or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7881.44</b>	<b>Teaching Business and Professional Communication</b>	<b>G</b>	<b>3</b>
Theoretical foundations of and teaching techniques for major units in business communication, designed to prepare graduate students to do research in and to teach business and professional writing. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 7881.44 (881.04) or equiv. This course is graded S/U.			
<b>7883.01</b>	<b>Seminar in Literacy Studies</b>	<b>G</b>	<b>3</b>
Study of a special topic in literacy studies; topics vary, but may include race, popular culture, gender, technology, or globalization. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr or hrs for 883 or 9 sem cr hrs for 7883.01 or 7883.02. Repeatable to a maximum of 9 cr hrs.			
<b>7883.02</b>	<b>Seminar in Literacy Studies</b>	<b>G</b>	<b>3</b>
Study of a special topic in literacy studies; topics vary, but may include race, popular culture, gender, technology, or globalization. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr or hrs for 883 or 9 sem cr hrs for 7883.01 or 7883.02. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>7884.01</b>	<b>History of Literacy/Literacy Past and Present</b>	<b>G</b>	<b>3</b>
Advanced exploration of the history of literacy; its relationship to societies, cultures, and change; the acquisition, practice, and impacts of literacy in historical contexts. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem hrs for 7884.01 or 7884.02, or 10 qtr hrs of 884 or History 775. Repeatable to a maximum of 9 cr hrs. Cross-listed in History 7884 and CompStd 7884.			
<b>7884.02</b>	<b>History of Literacy/Literacy Past and Present</b>	<b>G</b>	<b>3</b>
Advanced exploration of the history of literacy; its relationship to societies, cultures, and change; the acquisition, practice, and impacts of literacy in historical contexts. Prereq: Grad standing, or permission of instructor. Not open to students with 6 sem hrs for 7884.01 or 7884.02, or 10 qtr hrs of 884 or History 775. Repeatable to a maximum of 9 cr hrs. This course is graded S/U. Cross-listed in History 7884 and CompStd 7884.			
<b>7888.01</b>	<b>Interdepartmental Studies in the Humanities</b>	<b>G</b>	<b>1 - 3</b>
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr or hrs for 792 or 9 sem cr hrs for 7888.01 or 7888.02 or equiv. Repeatable to a maximum of 9 cr hrs or 9 completions. Cross-listed in AfAmASt, Clas, English, French, German, NELC, Spanish and WGSST.			
<b>7888.02</b>	<b>Interdepartmental Studies in the Humanities</b>	<b>G</b>	<b>1 - 3</b>
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Prereq: Grad standing, or permission of instructor. Not open to students with 15 qtr or hrs for 792 or 9 sem cr hrs for 7888.01 or 7888.02 or equiv. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U. Cross-listed in AfAmASt, Clas, English, French, German NELC, Spanish or WGSST.			
<b>7889.01</b>	<b>Seminar on Digital Media Studies</b>	<b>G</b>	<b>3</b>
Advanced theoretical and practical approaches to digital media in English studies. Examines such intellectual questions as authorship, narrative, argument, and the nature of texts. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr or hrs for 889 or 6 sem cr hrs for 7889.01 or 7889.02. Repeatable to a maximum of 6 cr hrs.			
<b>7889.02</b>	<b>Seminar on Digital Media Studies</b>	<b>G</b>	<b>3</b>
Advanced theoretical and practical approaches to digital media in English studies. Examines such intellectual questions as authorship, narrative, argument, and the nature of texts. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 10 qtr or hrs for 889 or 6 sem cr hrs for 7889.01 or 7889.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>7890.01</b>	<b>Seminar in Feminist Studies in Literature and Culture</b>	<b>G</b>	<b>3</b>
Analysis of literary and cultural texts through feminist methodologies. Time, period, and topic vary. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr or hrs for 892 or 12 sem cr hrs for 7890.01 or 7890.02. Repeatable to a maximum of 12 cr hrs.			

<b>7890.02</b>	<b>Seminar in Feminist Studies in Literature and Culture</b>	<b>G</b>	<b>3</b>
Analysis of literary and cultural texts through feminist methodologies. Time, period, and topic vary. Prereq: Grad standing, or permission of instructor. Not open to students with 20 qtr cr hrs for 892 or 12 sem cr hrs for 7890.01 or 7890.02. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7891.01</b>	<b>Seminar in Disability Studies Theory</b>	<b>G</b>	<b>3</b>
Intensive study of disability-studies theory, with focus on a specific topic such as 'Disability and Materiality' or 'Mind and Brain.' Prereq: Grad standing, or permission of instructor. Not open to students with 12-semester credits for 7891.01 or 7891.02. Repeatable to a maximum of 12 cr hrs.			
<b>7891.02</b>	<b>Seminar in Disability Studies Theory</b>	<b>G</b>	<b>3</b>
Intensive study of disability-studies theory, with focus on a specific topic such as 'Disability and Materiality' or 'Mind and Brain.' Prereq: Grad standing, or permission of instructor. Not open to students with 12-semester credits for 7891.01 or 7891.02. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7895.01</b>	<b>Seminar in Research Methods in Rhetoric and Composition</b>	<b>G</b>	<b>3</b>
Advanced study in a specific quantitative or qualitative research method in rhetoric and composition. Prereq: 6795 (795), or permission of instructor. Not open to students with 10 qtr cr hrs for 895 or 6 sem cr hrs for 7895.01 or 7895.02. Repeatable to a maximum of 6 cr hrs.			
<b>7895.02</b>	<b>Seminar in Research Methods in Rhetoric and Composition</b>	<b>G</b>	<b>3</b>
Advanced study in a specific quantitative or qualitative research method in rhetoric and composition. Prereq: Grad standing, or permission of instructor. Not open to students with 10 qtr cr hrs for 895 or 6 sem cr hrs for 7895.01 or 7895.02. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Doctoral students may register for individual study in areas not normally covered by courses. Prereq: Permission of grad committee. Not open to students with 30 qtr cr hrs for 993 or 18 sem cr hrs 8193. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>8858.01</b>	<b>Seminar in Folklore</b>	<b>G</b>	<b>3</b>
Advanced seminar on current or specialized topics in folklore studies. Prereq: Grad standing, or permission of instructor. Not open to students with 9 sem cr hrs of English 8858.01 (can include equiv qtr cr hrs for 870), English 8858.02, or CompStd 8858. Repeatable to a maximum of 9 cr hrs. Cross-listed in CompStd 8858.			
<b>8858.02</b>	<b>Seminar in Folklore</b>	<b>G</b>	<b>3</b>
Advanced seminar on current or specialized topics in folklore studies. Prereq: Grad standing, or permission of instructor. Not open to students with 9 sem cr hrs of 8858.01 (can include equiv qtr cr hrs for 870), 8858.02, or CompStd 8858. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8903</b>	<b>Teaching College English</b>	<b>G</b>	<b>1 - 3</b>
Students work as apprentices to faculty members in the planning and execution of an undergraduate English course; 8903 (903) must be taken prior to the candidacy exam. Not open to ABD students. Prereq: 8903 (903). Not open to students with 15 qtr cr hrs for 903 or 9 sem cr hrs for 8903. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8904</b>	<b>Writing for Publication</b>	<b>G</b>	<b>1 - 3</b>
Assists students in English in learning to write publishable critical essays and in becoming familiar with publishing protocols. Prereq: Not open to students with credit for 904, except by permission of director of Graduate Studies. Repeatable with permission of director of Graduate Studies. This course is graded S/U.			
<b>8982.01</b>	<b>Textual Criticism and Editing</b>	<b>G</b>	<b>1 - 3</b>
Evaluation of literary editorial methods, past and present; training in skills requisite to the textual critic and scholarly editor; practice in textual editing. Prereq: 8980 (980) or equiv. Not open to students with credit for 982, 8982.01, or 8982.02.			
<b>8982.02</b>	<b>Textual Criticism and Editing</b>	<b>G</b>	<b>1 - 3</b>
Evaluation of literary editorial methods, past and present; training in skills requisite to the textual critic and scholarly editor; practice in textual editing. Prereq: 8980 (980) or equiv. Not open to students with credit for 982, 8982.01, or 8982.02. This course is graded S/U.			
<b>8996</b>	<b>Research in English: Candidacy Examination</b>	<b>G</b>	<b>1 - 18</b>
Research in preparation for PhD exams; arranged. Prereq: Permission of director of Grad studies. Not open to students with 30 qtr cr hrs for 996 or 18 sem cr hrs for 8996. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			

<b>8997</b>	<b>The Dissertation Seminar</b>	<b>G</b>	<b>1 - 3</b>
Doctoral candidates present their research-in-progress to faculty and each other. Prereq: Successful completion of candidacy exam. Not open to students with 15 qtr cr hrs for 997 or 9 sem cr hrs for 8997. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8998</b>	<b>Research in English</b>	<b>G</b>	<b>1 - 18</b>
Research in English. Prereq: Not open to students with credit for 998. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Research in English: Dissertation</b>	<b>G</b>	<b>1 - 18</b>
Research for dissertation purposes only. Prereq: Not open to students with credit for 999. Repeatable. This course is graded S/U.			
Entomology			
<b>1100</b>	<b>Exploring Entomology</b>	<b>U</b>	<b>½</b>
Basic understanding of the global trends within entomology, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.			
<b>1101</b>	<b>Insect Biology</b>	<b>U</b>	<b>4</b>
Acquaints people with the incredible biological diversity represented by the largest group of living animals, the insects. Insects will be used to illustrate important biological principles and functions as well as the scientific process. Prereq: Not open to students with credit for 1111, 3000, 4000, or 4600. GE nat sci bio course.			
<b>1111</b>	<b>Biology of Insects, Animals &amp; Fungi Affecting Buildings</b>	<b>U</b>	<b>4</b>
Acquaint construction engineers with the incredible biological diversity found on Planet Earth using insects as examples and biological models. Management of building attacking and inhabiting insects, animals and fungi will be covered. Prereq: Not open to students with credit for 1101 (101), 3000 (500), 4000 (500), or 4600. GE nat sci bio course.			
<b>1260</b>	<b>Introductory Insect Field Biology</b>	<b>U</b>	<b>2</b>
Biology of insects and their relatives, with emphasis on behavior, ecology, and diversity; collection is required. Offered as one week summer course at Stone Lab. Prereq: Course in high school biology. Not open to students with credit for Entomol 126.			
<b>1350</b>	<b>The Biology of Hope and Belief</b>	<b>U</b>	<b>3</b>
The underlying premise of this course is that the human mind and human behaviors have been shaped by the force of natural selection. Some of these behaviors are complex, longstanding and present in every human culture ever studied. This course explores the biological basis for two of them: the human capacity for hope and the human desire to believe in a supernatural deity. Prereq: Not open to students with credit for Biology 1350. GE nat sci bio course.			
<b>2101</b>	<b>Insects and Human Affairs: Pests, Plagues, Poisons and Politics</b>	<b>U</b>	<b>3</b>
Insects are a daily fact of life, exerting major influence on human affairs over the course of history. The course analyses the extensive and sometimes uncomfortable relationships between insects and humans, including historical roots of insect/human interactions, impact of insects on development of scientific thought, use of insects as experimental models in drug design and military applications. Prereq: Not open to students with credit for 102. GE nat sci bio course.			
<b>2200</b>	<b>Beekeeping</b>	<b>U</b>	<b>3</b>
This class presents general information on the biology, behavior and management of honey bee colonies, including pollination behavior and simple honey processing.			
<b>2400H</b>	<b>Evaluating Evidence in Biology &amp; Medicine</b>	<b>U</b>	<b>3</b>
Explores information and scientific literacies in biology and medicine, with emphasis on science as reported in the media and the use of insects and other organisms as model systems. We use evolutionary theory as the unifying framework for all life on earth. The ability to scrutinize science as reported in popular sources and to procure additional, credible information is emphasized. Prereq: Honors standing. GE nat sci bio course.			
<b>3330</b>	<b>Social Insects</b>	<b>U</b>	<b>3</b>
Three hour general education course. Exploration of biological factors that permit ants, bees, wasps, and termites to maintain large and complex societies. Includes lecture and recitation. Prereq: Entm1gy 1101 (101) or Biology 1101 (101), or equiv. Not open to students with credit for Entm1gy 4440H (Entomol 444H) or Entomol 333. GE nat sci bio course.			
<b>3797.01E</b>	<b>Evolution in Darwin's World and Ours: Context</b>	<b>U</b>	<b>2</b>
Practice historical thinking and research skills while exploring Darwin's life, intellectual development, and theory of species origin in broad historical context. Discussions will include modern evolutionary theory and its broad applications in biology, medicine, and other human endeavors. These themes will be explored during travels abroad in the post-requisite course Entm1gy 3797.02E. Prereq: Fresh standing or above. Not open to students with credit for 3790H or 3797H. GE historical study course.			

## 196 Entomology

**3797.02E Evolution in Darwin's World and Ours: Abroad** U 1

Building on the context of the development of evolutionary theory explored during Entmlyg 3797.01E, we will visit key museums and sights in London, Cambridge, and the village of Downe, England. Special visits with archivists, historians, scientists, and certified guides augment course readings and discussion.  
Prereq: 3797.01E. Not open to students with credit for 3790H or 3797H. GE historical study course.

**4000 General Entomology Lecture** U 3

The course serves both as a single, concise exposure to the subject and as a foundation for advanced work in entomology (systematics, evolution, ecology, management). Lectures cover all fundamental aspects but emphasize basic biological phenomena, including diversity, evolution, classification, structure, function, development, reproduction, behavior, and ecology.  
Prereq: Biology 1113, 1113H, 1114, or 1114H. Not open to students with credit for 3000.

**4001 General Entomology Laboratory** U 1

Laboratories will introduce the major patterns of diversity among insects and will provide experience and develop abilities in the identification of insects. We will explore insect and other arthropod diversity and evolution by collecting, identifying and curating invertebrate specimens. A personally collected and identified insect collection is a major component of the laboratory grade.  
Prereq: Biology 1113, 1113H, 1114, or 1114H. Prereq or concur: Entmlyg 4000. Not open to students with credit for 3000.

**4191 Internship Experiences in Entomology** U 1 - 2

Ten or more weeks of an individualized experiential learning opportunity designed to link theoretical classroom knowledge with practical field application or research experience in an ongoing research environment.  
Prereq: 3000 (500) or 4000 (500), and an additional Entmlyg course at the 3000 (300) level or above, and Soph standing or above, and permission of advisor. Repeatable to a maximum of 4 or hrs or 2 completions. This course is graded S/U.

**4193 Individual Studies** U 1 - 3

Individual work in the field of entomology, involving laboratory, field, or library studies, appropriate for the student's needs.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4194 Group Studies** U 1 - 3

Special group study of a selected area in the field of entomology not provided in other courses. Repeatable to a maximum of 9 cr hrs or 9 completions.

**4440H Honors Social Insects** U 3

Exploration of biological factors that allow ants, bees, wasps, and termites to maintain large complex societies.  
Prereq: Honors standing, and Entmlyg 1101 (Entomol 101) or Biology 1101 (101), or equiv. Not open to students with credit for Entmlyg 3330 (Entomol 333) or 444H.

**4600 Introduction to Insect Science** U 1

This digital course provides basic information on insects to students intending to take additional coursework in entomology.  
Prereq: Biology 1101 (101), 1113 (113), or 1115H (115H), or equiv. Not open to students with credit for 1101 (101), 1111, 3000 (500), 4000 (500), 460, or 462.

**4601 General Insect Pest Management** U 2

Exploration of insect pests that affect crops, landscapes, public health, and domestic animals, and the biological, cultural, and chemical tactics used to manage them.  
Prereq: 1101, 1111, 3000, 4000, or 4600.

**4602 Urban Landscape and Greenhouse Entomology** U 2

An economic entomology course covering the insect and mite pests of ornamental plants, turfgrass and greenhouse crops. Major pest groups are covered and control of the pests using Integrated Pest Management is emphasized.  
Prereq: 1101 (101), 1111, 3000 (500), 4000 (500) or 4600. Not open to students with credit for 462.

**4603 Agricultural Entomology** U 2

An exploration of insect pests that affect grain, forage, vegetable, and fruit crops, and the biological, cultural, and chemical tactics used to manage them.  
Prereq: 1101, 1111, 3000, 4000 or 4600. Not open to students with credit for Entomol 460.

**4607 Veterinary Entomology** U 2

The goal of this on-line course is to introduce students to the fascinating world of arthropod pests that impact the health and well-being of domesticated animals. The course will place an emphasis on understanding the remarkable biology of blood-feeding arthropods and the diseases that they transmit to companion and livestock animals.

**4998 Undergraduate Research in Entomology** U 1 - 3

Undergraduate experience in entomological research in variable topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4999 Research with Distinction** U 1 - 5

Conducting and reporting research with distinction.  
Prereq: GPA 3.0 or above overall, GPA 3.0 or above in the major, and permission of project supervisor. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4999H Honors Research with Distinction** U 1 - 5

Conducting and reporting Honors research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the University's Denman Undergraduate Research Forum. Completion of online Honors Research Workshop required prior to enrollment.  
Prereq: Honors standing, and CPHR 3.40 or above, and GPA 3.40 or above in major, and permission of honors project supervisor. This course is graded S/U.

**5001 Entomological and Environmental Approaches to Fly Fishing** U G 3

Students will study the life histories and behaviors of the most common aquatic insects that serve as a primary food source for rainbow, brown and steelhead trout in Ohio streams. To enhance student success and enjoyment of fly fishing, the course content will include stream ecology, hydrology, and hydrodynamics, water quality, how to sample and identify macroinvertebrates, and fly-tying.  
This course is grades S/U.

**5060 Practical Experiences in Plant Health: Insects & Diseases of Plants** U G 2

Plants are attacked by a multitude of pathogens and insects. Each plant in a production region has documented pests that can negatively impact plant health. Environment and production practices can influence the outcome of interactions between pathogens and pests. This is a beginning course for students to learn how to recognize signs and symptoms of economically important pathogens and insects.  
Prereq: 5600 or PlntPth 5603, or permission of instructor. Not open to students with credit for PlntPth 5060. Cross-listed in PlntPth.

**5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments** U G 3

Overview of major pathogens and insects affecting health of forest and shade trees with emphasis on diagnosis, ecology, and management. Video-linked to Wooster.  
Sp Sem. Prereq: Not open to students with credit for Entomol 461 or PlntPth 610. Cross-listed in PlntPth.

**5350.01 Taxonomy and Behavior of Aquatic Invertebrates** U G 3

Taxonomy and behavior of the major groups of aquatic invertebrates, with an emphasis on North American freshwater macroinvertebrates. 1-2 required field trips.  
Prereq or concur: ENR 5280, or permission of instructor. Not open to students with credit for ENR 5350.01. Cross-listed in ENR.

**5490 Insect Behavior: Mechanisms and Function** U G 3

The behavior of insects mediates all aspects of their ecological interactions and evolution. This course describes the multitude of behaviors expressed by insects and explores how behavior determines survivorship and fitness. We will discuss selective forces and constraints driving evolution of behaviors and mechanisms that make possible complex expression within simple insect nervous systems.  
Prereq: Jr standing or above. Not open to students with credit for 5420. Cross-listed in EEOB.

**5500 Biological Control of Arthropod Pests** U G 3

Covers philosophy, science, and application of biological control. Biology, mass-production, formulation, and application of various parasites, predators, and pathogens of pests will be discussed.  
Prereq: Jr standing or above. Not open to students with credit for 650.

**5600 Principles and Applications of Integrated Pest Management** U G 3

Overview of the principles of integrated pest management (IPM) of arthropod pests using an ecological approach, including examining how various management tactics can be used in an integrated manner.  
Prereq: Jr standing or above. Not open to students with credit for 660.

**5604 Capstone Course: Problem-Based Studies in Plant Health** U G 2

Students will be presented with a current plant health problem from the industry. They will gather diverse information from consultants, synthesize novel solutions, and develop implementation plans.  
Prereq: Jr, Sr, or Grad standing in Entmlyg, PlntPth, or Plant Hlth Mgmt. Not open to students with credit for PlntPth 5604. Cross-listed in PlntPth.

**5605 Vector Biology and Vector Borne Diseases** U G 3

An overview of the insect vectors that pose the greatest threats to human health. Learn about their basic ecology and behavior, the pathogens they transmit, the diseases caused by those pathogens, and the fascinating biology behind these vector-pathogen-host interactions. Learn also about current methods being implemented around the globe to control vector borne disease transmission.  
Prereq: Biology 1101, 1113, or 1113H, or equiv.; or Grad standing.

**5608 Turfgrass Insect and Mite Pests - Identification, Biology, and Management U G 2**

This course provides information on the insect groups that attack managed turfgrass (lawns, grounds, sport fields, and golf courses) in such a manner that participants will learn how to diagnose and identify common pests, and be able to select appropriate methods of managing these pests.  
Prereq: 1101 (101), 1111, 3000, 4000 (500), or 4600.

**5609 Landscape Ornamental Plant Insect and Mite Pests - Identification, Biology and Management U G 3**

This course covers insects and mites that attack landscape ornamental plants (trees, shrubs, perennials, annuals). Students learn to diagnose and identify common pests, and select appropriate management methods. Management strategies include monitoring techniques, pesticides, biocontrol, resistance, cultural/mechanical controls, in an Integrated Pest Management (IPM) approach.  
Prereq: 1101, 1111, 3000, 4000, or 4600.

**5610 Greenhouse Plant Health and Pest Management U G 3**

Overview of the principles of plant health and pest management applied to the production of plants and other commodities in controlled environments, including greenhouses, urban vertical agriculture, high tunnels, hydroponic systems, and interiorscapes.  
Prereq: Sr standing or above.

**5797 Emerging Arthropods, Pathogens, and Challenges in Vector Biology U G 3**

Provides students with immersive field and lab experiences that span the entire spectrum of vector biology. The course consists of a study abroad component in Xalapa, Mexico (INECOL) focused on the collection and identification of arthropod vectors (e.g., mosquitoes) in the field, and a local component in Wooster, OH (OARDC) focused on molecular approaches used in vector biology. A prior introductory course in entomology or public health/infectious diseases is highly encouraged. Familiarity with the Spanish language is highly recommended for OSU students, and English is needed for INECOL students.  
Prereq: Jr or Grad standing.

**5800 Pesticide Science U G 3**

Exploration of pesticide toxicology and practical use; modes of action in target organisms, regulations, application methods, environmental fate, resistance management, and use in integrated pest management programs.  
Prereq: Jr standing or above.

**6193 Individual Studies G 1 - 6**

Individual work in the field of entomology, involving laboratory, field, or library studies, appropriate for the student's needs.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**6194 Group Studies G 1 - 3**

Special group study of a selected area in the field of entomology not provided in other courses. Repeatable to a maximum of 9 cr hrs or 9 completions.

**6210 Evolution and Diversity of Insects G 4**

The scope of this course extends from the molecular to at least the community and ecosystem levels. Elucidation of the pattern of insect evolution builds upon molecular, anatomical, and behavioral data. Students will study and learn about the evolutionary and developmental origins of anatomical structures and understand how those structures interact and function.  
Prereq: 3000 or 4000 (500), or equivalent, or permission of instructor.

**6310 Insect Physiology and Molecular Biology G 3**

Explores physiological and molecular mechanisms that regulate insect development and function.  
Prereq: Credit for one Entmlgy course, and Grad standing; or permission of instructor. Not open to students with credit for 631.

**6320 Experimental Insect Physiology and Molecular Biology G 1**

This laboratory course uses both classical and cutting-edge experimental techniques to uncover aspects of insect biology. We will conduct a series of novel experiments on diapausing and non-diapausing model insects to show physiological and molecular mechanisms used to survive winter. The course goal is to create a student co-authored manuscript to submit to the Journal of Insect Physiology.  
Prereq or concur: 6310.

**6410 Insect Ecology and Evolutionary Processes G 3**

Overview of abiotic and biotic factors influencing the diversity, distribution, and abundance of insects with a focus on general ecological and evolutionary principles.  
Prereq: Grad standing, or permission of instructor.

**6501 Mentored Teaching in Entomology G 1 - 3**

Students will work with faculty members to gain intensive hands-on mentored experiences focused on direct interaction with students and on the scholarly aspects of effective teaching.  
Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**6502 Mentored Extension Experience in Entomology G 1 - 3**

Students will work with faculty members to gain intensive hands-on mentored experiences focused on direct interaction with community stakeholders and on various aspects of extension work.  
Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**6703 Molecular Techniques and Data Analysis G 2**

Deals with basic molecular biology techniques required to conduct genomics, proteomics and metabolomic studies. Hands-on experience in bioinformatics, functional genomics and metabolite analysis will be emphasized.

**7300 Plant Health Management Seminar G 1**

This course is designed to cover current topics in plant health management for students in the Master in Plant Health Management program. Topics and guest speakers may differ from semester to semester and will depend on student interest.  
Repeatable to a maximum of 6 cr hrs. This course is graded S/U. Cross-listed in PlntPth.

**7890 Special Topics in Entomology G 1 - 3**

Seminar on publications, current research, or research techniques.  
Repeatable to a maximum of 6 cr hrs or 6 completions.

**7910 The Nature and Practice of Science G 2**

Analysis and application of logic underlying scientific reasoning, theory, hypothesis, and their integration with experimental design, discovery, ethics, and science as a human endeavor.  
Prereq: Not open to students with credit for Entomol 790.

**7920 Presentation Skills for Scientists G 2**

Professional development course for graduate students who are interested in developing and improving their presentation skills for communicating with peer scientists and the public, using a variety of media.

**7930 Scientific Writing & Grant Proposal Development G 2**

For graduate students who wish to develop and improve their written skills for communicating with technical and nontechnical audiences.

**7999 Research in Entomology, MS G 1 - 16**

Research for thesis purposes only. Research may take place in laboratory, greenhouse, and/or field resources at The Ohio State University in Columbus, Wooster and other associated research areas as determined by student and instructor. Research may include experimental studies, revisional studies, or studies that create original data or technology that contributes to the discipline.  
Prereq: Grad standing in Entomology. Repeatable. This course is graded S/U.

**8000 Entomology Seminar G 1**

Weekly departmental seminars given by experts in the field are used to give students insight into current trends in entomological research.  
Prereq: Grad standing in Entmlgy. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**8800 Research and Training Seminar G 1**

Presentation of procedures, resources, and faculty research in the Department of Entomology. Required of all graduate majors during the first year of registration.  
Prereq: First year Grad standing in Entmlgy. Not open to students with credit for Entomol 880. This course is graded S/U.

**8998 Research in Entomology, PhD Pre-Candidacy G 1 - 16**

Research for dissertation purposes only. Research may take place in laboratory, greenhouse, and/or field resources at The Ohio State University in Columbus, Wooster and other associated research areas as determined by student and instructor. Research may include experimental studies, revisional studies, or other studies that create original data or technology that contributes to the discipline.  
Prereq: PhD Grad student standing in Entomology without completion of a candidacy exam. Repeatable. This course is graded S/U.

**8999 Research in Entomology, PhD Post-Candidacy G 1 - 16**

Research for dissertation purposes only. Research may take place in laboratory, greenhouse, and/or field resources at The Ohio State University in Columbus, Wooster and other associated research areas as determined by student and instructor. Research may include experimental studies, revisional studies, or other studies that create original data or technology that contributes to the discipline.  
Prereq: PhD Grad student standing in Entomology having completed the candidacy exam. Repeatable. This course is graded S/U.

Environment and Natural Resources

**1100 Environment and Natural Resources Survey U 1**

Survey course for ENR students. Covers academic requirements; university procedures, grading system, resources; student rights and responsibilities; overview of academic areas of study. Also covers career opportunities in Env't and Nat Res.  
Prereq: Not open to students with credit for 119 or FAES 100.

**1100H Environment and Natural Resources Survey - Honors Section U 1**

Survey course for ENR Honors students. Covers academic requirements; university procedures, grading system, resources; student rights and responsibilities; overview of academic areas of study. Also covers career opportunities in Env't and Nat Res.  
Prereq: Honors standing. Not open to students with credit for 119 or FAES 100H.

**1150 ENR Scholars Seminar U 1**

Designed for first year Environment and Natural Resources Scholars students to explore personal interests, interdisciplinary opportunities, campus and local community resources, and issues and activities related to Environment and Natural Resources.  
Prereq: Must be an ENR Scholar. Repeatable to a maximum of 2 cr hrs.

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**1200 Exploring Sustainability: SUSTAINS LC Seminar** U 1

This seminar course is designed for SUSTAINS Learning Community students to explore their interests within sustainability, learn about opportunities to be involved in campus and local community sustainability efforts, and connect with campus partners and faculty working and researching in the field. Students must be a part of the SUSTAINS Learning Community in order to take this seminar.

Prereq: Must be in the SUSTAINS Learning Community. Repeatable to a maximum of 2 cr hrs. This course is graded S/U. Cross-listed in AEDEcon.

**1500 Career Development and Success** U 1

Professional development course for SENR majors. The purpose of the course is to help students explore career options and next steps, develop career-specific skills such as interviewing, networking, and resume development, and to connect students with professionals in the field.

Prereq: Soph standing or above, and enrollment in ENR major.

**2000 Natural Resources Data Analysis** U 3

Introductory data analysis course that focuses on understanding and applying basic statistical concepts, problem solving, and interpreting the results of statistical analysis.

Au, Sp Sems. GE data anly course.

**2100 Introduction to Environmental Science** U 3

Introduction to environmental science, the ecological foundation of environmental systems, the ecological impacts of environmental degradation by humans, and strategies for sustainable management of environment and natural resources.

This course is available for EM credit. GE nat sci bio course.

**2155 Energy and Environment** U 3

This course introduces and examines the fundamentals of energy sources, energy use, energy efficiency, and resulting environmental implications of the various energy supplies.

Sp Sem. Prereq: Not open to students with credit for 155 or EarthSc 2155 (EarthSci 155). GE nat sci phys course. Cross-listed in EarthSc.

**2191 Part-time Professional Practice in Environment and Natural Resources** U 1

Part-time practical professional experience in an environmental/natural resources field.

Prereq or concur: 3191. Repeatable to a maximum of 4 cr hrs. This course is progress graded (S/U).

**2300 Society and Natural Resources** U 3

Introduction to interactions between humans, natural resources, and ecosystems from a social science perspective.

Au, Sp, Su Sems. Prereq: Not open to students with credit for 203. GE soc sci human, nat, and econ resources course.

**2360 Ecology and Conservation of Birds** U 2 - 3

Introduction to the ecology and conservation of birds, with special emphasis on field ornithology and student research projects. Course integrates many concepts to build understanding of how research and management can support bird conservation.

Prereq: Not open to students with credit for 230 or 231.

**2367 Communicating Environmental and Natural Resources Information** U 3

Concepts, skills development, and practice in accessing and communicating information about the environment and natural resources to varied audiences; emphasis on written and oral communication.

Prereq: English 1110, and Soph standing or above. GE writing and comm course: level 2.

**2500 Introduction to Sustainability** U 3

Introduces students to principles from various disciplines related to social, economic and environmental sustainability. Students will evaluate key concepts and examine tradeoffs that are a part of sustainability action using case studies representing diverse perspectives.

Prereq: Soph standing, or permission of instructor. Not open to students with credit for AEDEcon 2500. Cross-listed in AEDEcon.

**3000 Soil Science** U 3

Introduction to soil physical, chemical, and biological properties related to land use, environmental quality, and crop production.

Au, Sp Sems. Prereq: Not open to students with credit for 300.01. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.

**3001 Soil Science Laboratory** U 1

Observation and quantitative determination of soil properties.

Prereq or concur: 3000. GE nat sci phys course.

**3005 Soil and Site Evaluation for Onsite Wastewater Treatment** U 3

This is a hybrid course (online & field labs) in assessing sites and soils for designing environmentally responsible on-site wastewater treatment systems. It covers assessing soil conditions, description of soil horizons and properties, identification of limiting conditions, mapping methods to develop site plans, and understanding of soil hydrology relevant to onsite wastewater treatment.

**3100 Introduction to Sustainable Agriculture** U 3

This course is an introduction to the issues, concepts and practices associated with sustainable agriculture. Since agriculture is a complex social-ecological system which integrates a wide range of economic, environmental and social aspects, this course uses a multidisciplinary approach to enable students to assess the sustainability of agricultural systems.

**3191 Conducting Your Internship in the School of Environment and Natural Resources** U 0

SENR strives to provide opportunities for students to develop the critical competencies and technical knowledge and skills that employers demand in the job market and that are necessary for student success in their chosen field. This class provides students the structure to complete the initial requirements of their internship experience and begin reflecting on that experience.

Prereq: Internship approval, and permission of instructor. Repeatable to a maximum of 4 completions. This course is graded S/U.

**3200 Environmental and Natural Resources Policy** U 3

This course covers topics such as the constitutional foundations of environmental policy, the role of congress and the executive branch in designing policy and bureaucratic agencies in implementing them, and the courts system as the final arbiter for environmental disputes. It also covers some of the foundational legislation in the U.S. to protect the environment and natural resources.

Prereq: 2100 and 2300. Not open to students with credit for 4000. GE soc sci orgs and polities course.

**3280 Water Quality Management** U 2

Causes, consequences, and solutions of pollution in lakes, rivers, wetlands, and groundwater; analysis of the physical, chemical, and biological indicators of water quality.

**3300 Introduction to Forestry, Fisheries, and Wildlife** U 3

This course is an introduction to the basic elements of forestry, fisheries, and wildlife (FFW) ecology and management for majors in environment and natural resources. This course has also been organized to provide an introduction to non-majors who may not have the opportunity to take further courses in these fields.

Prereq: 2100 or EEOB 3410. Not open to students with credit for 3300E.

**3300E Introduction to Forestry, Fisheries, and Wildlife** U 3

This course is an introduction to the basic elements of forestry, fisheries, and wildlife (FFW) ecology and management for majors in environment and natural resources. This course has also been organized to provide an introduction to non-majors who may not have the opportunity to take further courses in these fields.

Prereq: Honors standing, and 2100 or EEOB 3410. Not open to students with credit for 3300.

**3321 Biology and Identification of Woody Forest Plants** U 3

Field identification of trees, shrubs, and vines in temperate forest ecosystems; basic biological principles of morphology, reproduction, growth, genetics, and taxonomy of major woody species.

Au Sem. Prereq: Not open to students with credit for 221.

**3322 Forest Ecosystems** U 3

Structure and function of temperate forest ecosystems; field-oriented study of the relationships among ecosystem components, and of the composition and successional dynamics of forest communities. One or more all-day field trips.

Au Sem. Prereq or concur: 2100 (210), 2300 (203), and 3321 (221), or permission of instructor. Not open to students with credit for 322.

**3323 Forest Biometrics** U 3

A study of the quantitative decision tools necessary to measure the forest resource; confidence and probability measures of land area, timber, water, wildlife, and recreation.

Sp Sem. Prereq: 2000 (222), Stat 1450 (145), HCS 2260 (260), or AnimSci 2260 (260). Not open to students with credit for 323.

**3333 Silviculture** U 3

Ecological principles and practical applications of methods for controlling forest ecosystem structure and function; prescription of silvicultural practices in the field. One or more all-day field trips.

Sp Sem. Prereq or concur: 2100 (201), 2300 (203), and 3321 (221), or permission of instructor. Not open to students with credit for 333.

**3335.01 Introduction to Wildland Fire Management** U 2

Wildland fire behavior, fire safety, control of wildland fires, and the use of prescribed fire in management objectives. Meets S-100 and S-190 requirements for wildland firefighter certification.

Au Sem. Prereq: Not open to students with credit for 350.01.

**3335.02 Wildland Fire Management Laboratory** U 1

Teaches wildland firefighter skills and safety, and provides familiarity with tools and apparatus. Meets S-130 requirements for wildland firefighter certification. One weekend field work required.

Au Sem. Prereq or concur: 3335.01. Not open to students with credit for 350.02.

**3400 Psychology of Environmental Problems** U 3

The theory and psychology behind individual and group behavior as it relates to environmental problems.

Au Sem. Prereq: 2300 (203) or Psych 1100 (100). Not open to students with credit for 615.



## Environment and Natural Resources 199

**3470 Religion and Environmental Values in America** U 3

Examines development & influence of religious environmental values & their impact on environmental citizenship in America; Jewish, Muslim, Buddhist & Christian environmental perspectives; stewardship, eco-justice & creation spirituality.  
Sp Sem. Prereq: Not open to students with credit for 347. GE cultures and ideas course.

**3470E Religion and Environmental Values in America** U 3

Examines development & influence of religious environmental values & their impact on environmental citizenship in America; Jewish, Muslim, Buddhist & Christian environmental perspectives; stewardship, eco-justice & creation spirituality.  
Prereq: Honors standing. Not open to students with credit for 3470. GE cultures and ideas course.

**3500 Community, Environment and Development** U 3

Social change related to natural resource and environmental issues. Includes a focus on community-level initiatives, environmental social movements, and issues of environmental justice.  
Sp Sem. Prereq: 2300 (203), RurlSoc 1500 (105), or Sociol 1101 (101).

**3530 Women, Environment and Development** U 3

Interdisciplinary study of women's roles as environmental stewards and in resource-based development in global context. Attention given to gender differences in environmental and rural development practices.  
Cross-listed in WGSSt.

**3600 Management of Public Lands** U 3

Examination of parks and recreation concepts including development, rationale, and frameworks for park and recreation systems in the United States.  
Prereq or concur: 2100 and 2300.

**3611 Foundations for Environmental Communications, Education and Interpretation** U 2

Foundational course that prepares students for understanding the theoretical bases that relate to and differentiate between environmental communications, education, and interpretation. Course includes required field trips.  
Au Sem. Prereq: Not open to students with credit for 311.

**3700 Introduction to Spatial Information for Environment and Natural Resources** U 3

Introduction to methods of collecting and utilizing spatial information (GIS, RS and GPS) for Environmental and Natural Resources management.  
Prereq: Not open to students with credit for 3750 or 324.

**3800 Principles and Tools of Ecosystem Restoration** U 2

The new Anthropocene era brings with it mass extinctions, climate change, and ecosystem degradation. Restoration provides us with hope for the future. We will examine the philosophical and practical basis for restoration, reviewing how decisions are made and implemented.  
Prereq: 2100 or Biology 1114, or permission of instructor. Not open to students with credit for 5560.

**3900 Sustainability Metrics** U 4

Addresses the use of metrics, data, and indicators to measure sustainability and track progress. The course will survey a broad range of environmental challenges and evaluate the choices confronting public and private groups. Students will use software tools to quantify sustainability measures.  
Prereq: 2000 or AEDEcon 2005, or other GE Data Analysis course.

**4191 Professional Practice in Environment and Natural Resources** U 2

Full-time practical professional experience in an environmental/natural resources field.  
Prereq or concur: 3191. Not open to students with 4 cr hrs of 4191. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

**4193 Individual Studies in Environment and Natural Resources** U 1 - 3

Individual Studies in Environment and Natural Resources.  
Au, Sp Sems. May Term. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**4260 Soil Resource Management** U 3

Degradation of the soil by erosion, compaction and salinity. Methods of preventing degradation and remediating existing problems. Special emphasis on conservation tillage, crop rotations, and irrigation management.  
Prereq: 3000 (300.01), or permission of instructor. Not open to students with credit for 442.

**4285 Watershed Hydrology** U 3

Covers hydrologic processes in watersheds, including precipitation, evapotranspiration, infiltration, runoff, and streamflow. We will evaluate how watershed characteristics, climate, and land use control these processes. In addition, we will discuss and practice current physical, chemical, and computational techniques for characterizing the hydrologic functioning of watersheds.  
Prereq: Chem 1210, and Math 1151 or 1156.

**4320 Sustainable Forest Products** U 3

Study of forest operations & environmental effects, including timber harvesting & transport from forest to the mill. Uses of wood, fiber products, & wood waste, including solid wood products, wood composites, biomass energy, & biofuel.  
Sp Sem. Prereq: 2100 (201) and 2300 (203), or permission of instructor. Not open to students with credit for 432.

**4342 Freshwater Fisheries Management** U 3

Ecological principles applied to conservation and management of aquatic vertebrates. Principles of fisheries management including social and economic factors.  
Prereq: 3300, or permission of instructor.

**4345 Methods in Aquatic Ecology** U 4

Introduction to experimental designs, field and laboratory techniques, and statistical methods commonly used to study aquatic ecosystems.  
Prereq: 2000, Stat 1450, or other GE Data Analysis course, or permission of instructor. Not open to students with credit for 5345.

**4360 Zoo Science and Management** U 2

Introduces students to zoo science and management through combination of formal course work and experience with zoo/aquarium professionals.  
Sp Sem. Prereq: 3300 (319), 3600 (340), or 3611 (311), or permission of instructor. Not open to students with credit for 415.

**4400 Law and Legal Process** U 3

Introduction to American law and legal process. Addresses law, science, and administrative process esp. in regard to planning and management of land, natural resources, and the environment; examines related cases, statutes, rules, permits.  
Prereq: Not open to students with credit for 694.

**4450 Climate Change Policy** U 3

Climate change adaptation and mitigation policy instruments and governance processes; theoretical frameworks for analysis of climate change governance.

**4567 Assessing Sustainability: Project Experience** U 3

Students gain experience in sustainability assessment by applying concepts and quantitative methods to evaluate environmental, economic, social, & technical sustainability of specific projects. EEDS major capstone. Co-taught by ENR/AEDE/FABE faculty.  
Prereq: 2500 or AEDEcon 2500, and Sr standing; or permission of instructor. Not open to students with credit for AEDEcon 4567. Cross-listed in AEDEcon.

**4610 Natural History of Ohio** U 3

Field course emphasizing inter-relationship among physical and biological factors in various ecological settings; field techniques and identification skills used for research paper. Sat field trip.  
Sp Sem. Prereq: Not open to students with credit for 510.

**4611 Environmental Interpretation and Visitor Services** U 3

Principles and practice in communicating with visitors in leisure and non-formal education settings.  
Sp Sem. Prereq: Not open to students with credit for 410.

**4648 Environment and Natural Resources Law Enforcement** U 3

An examination of the law enforcement function in environment and natural resources and recreation management. Prerequisite for acceptance to the Natural Resources Ranger Academy program.  
Sp Sem. Prereq: Not open to students with credit for 448.

**4800 Practical Skills for Terrestrial Ecosystem Restoration** U 2

This course develops practical skills in restoration ecology and gives the ability to implement restoration management plans. This includes invasive species control, planting native species, seed collection, soil seedbank assays, plant propagation, and ground preparation.  
Prereq: 3800.

**4890H Honors Colloquium** U 1

Instruction in the preparation of research proposals and discussion of current research in natural resources. Required of all ENR honors students.  
Prereq: Honors standing, and Jr standing in ENR. Not open to students with credit for 590H. This course is graded S/U.

**4900.01 Environment and Natural Resources Management** U 3

Integration of technical knowledge with social and institutional constraints as they relate to professions in ENR management.  
Prereq: Sr standing in ENR.

**4900.02 Environment and Natural Resources Management for Forestry Fisheries and Wildlife** U 3

Application and integration of technical knowledge and methodologies in the forestry, fisheries, and wildlife sciences to planning, problem-solving, and decision-making in environment and natural resources.  
May Term. Prereq: Jr or Sr standing in ENR. Not open to students with credit for 606.02.

## 200 Environment and Natural Resources

**4950 Wilderness Leadership Education** U 3

Affiliate program with the North Carolina Outward Bound School (NCOBS). Field studies and practice of wilderness expedition skills, leadership, group dynamics, safety, judgment, and environmental studies. Approval of NCOBS application required. Specific content, location, semester(s) of offering and prerequisites vary. Students will pay OSU fees and any fees in excess of OSU tuition, incl. travel.  
Prereq: Permission of instructor.

**4998 Undergraduate Research** U 1 - 6

Conducting and reporting undergraduate research.  
Prereq: Permission of research project supervisor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.

**4999 Research with Distinction** U 1 - 6

Conducting and reporting undergraduate research. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman Undergraduate Research Forum.  
Prereq: 3.0 CPHR or above, and permission of project supervisor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.

**4999H Honors Research With Distinction** U 1 - 6

Conducting and reporting honors research with distinction.  
Prereq: Honors standing, and CPHR 3.4 or above, and permission of instructor. Repeatable to a maximum of 6 or hrs or 3 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 3

Group studies on the nature and management of environmental and natural resources encompassed in various developing and special topics.  
Au, Sp Sems. Prereq: Permission of instructor. Not open to students with maximum qtr or hrs for 694. Repeatable to a maximum of 6 or hrs or 2 completions.

**5210 US Environmental Impact Assessment** U G 3

Study of impact of human activity in natural resources through evaluation of environmental impact.  
Prereq: Jr, Sr, or Grad standing.

**5211 International Environmental Impact Assessment** U G 3

Fundamental concepts of international environmental impact assessment including the legal and institutional frameworks, practice and performance, and social and cultural contexts that shape EIA's implementation worldwide.  
Prereq: Jr, Sr, or Grad standing, or permission of instructor.

**5250.01 Wetland Ecology and Restoration** U G 3

Wetland hydrology, biogeochemistry, vegetation, biotic adaptations. Ecosystem services, classification, and management of wetlands. Fundamental concepts of ecological engineering applied to wetland creation and restoration and river restoration.  
Prereq: EEOB 503.01 or Grad standing. Not open to students with credit for 725 or 726.

**5250.02 Wetland Field Laboratory** U G 1

Laboratory on wetland hydrology, vegetation, water quality, soils, and aquatic biota.  
Prereq: Concur: 5250.01. Not open to students with credit for 725 or 726.

**5260 Soil Landscapes: Morphology, Genesis and Classification** U G 3

Course in soil genesis, classification and mapping.  
Au Sem. Prereq: 3000 (300.01) and 3001 (300.02); or Grad standing; or permission of instructor. Not open to students with credit for 650.

**5261 Environmental Soil Physics** U G 3

Principally involves the state and transport of water, heat and gas within soil, and the associated soil physical properties.  
Sp Sem. Prereq: Not open to students with credit for 655 or 671.

**5262 Environmental Soil Chemistry and Remediation** U G 3

Environmental soil chemistry relevant to soil and contaminant remediation. Excessive phosphorus fertilizer, degraded coal mineland soils; salt degradation; heavy metal contamination; urban soils. Socioeconomic considerations including cost and community/regulatory agency acceptance. Laboratory focuses on hands-on soil investigation/problem solving using soil geochemical computer models.  
Prereq: One semester of Chemistry, or Grad standing.

**5263 Biology of Soil Ecosystems** U G 3

A comprehensive study of microbial communities and their role in providing ecosystems services.  
Prereq: 3000, or Grad standing.

**5265 Field Investigations: Microbial Ecology Methods for Environmental and Agricultural Applications** U G 2

Field soil observations; sampling across the landscape; GPS and GIS data acquisition systems and spatial statistical analysis; soil physical and water measurements in the field.  
Prereq: 3000 and 3001; or Grad standing.

**5266 Field Soil Investigation: Soil Chemistry, Fertility and Biology** U G 3

A comprehensive overview of theory, principles and techniques of laboratory methods used for chemical analysis of soil, plant material, and environmental samples.  
Sp Sem. Prereq: Not open to students with credit for 740.

**5268 Soils and Climate Change** U G 3

This course is designed for students interested in learning basic soil and geologic processes as they impact climate change and are impacted by it. Topics covered include soil processes, abrupt climate change, trace gases and their properties, global C cycle, gaseous emissions, C-neutral fuels, carbon sequestration, Kyoto Treaty, and trading of C credits.  
Prereq: Not open to students with credit for EarthSc 5268. Cross-listed in EarthSc.

**5270 Soil Fertility** U G 3

Provides a broad overview of the principles of soil fertility, plant nutrition, & nutrient management in managed ecosystems. Covers foundational information on the cycling of individual nutrients in soil, including the biotic and abiotic factors that influence these dynamics. Exposure to many contemporary issues around nutrient management and basic practical skills for managing nutrients.  
Prereq: 3000, or Grad standing, or permission of instructor.

**5271 Soils of Forest Ecosystems** U G 3

Characteristics and processes of soils in natural and managed forests; interactions of forest communities and soils; mgmt of soils in forest ecosystems. Designed for all students & practicing professionals in forestry & soil science.  
Au Sem. Prereq: 3000 (300.01), or Grad standing, or permission of instructor. Not open to students with credit for 630.

**5272 Turfgrass Soils** U G 2

Soil properties and processes of specifically designed and constructed soils meeting the agronomic and playability requirements of golf course and athletic field venues.  
Sp Sem. Prereq: 3000 (300.01); or Grad standing; or permission of instructor. Not open to students with credit for 540.

**5273 Environmental Fate and Impact of Contaminants in Soil and Water** U G 3

An overview of contaminant sources, transport through soil and water, and environmental fate and impact to human and ecosystem receptors.  
Sp Sem. Prereq: Grad standing or two semesters of chemistry. Not open to students with credit for 675.

**5274 Ecosystems Simulation** U G 3

A laboratory course in conducting computer simulations of agricultural, forest and aquatic ecosystems addressing both production and environmental protection issues.  
Prereq: 3000 (300.01) and 3001 (300.02), or Grad standing. Not open to students with credit for 730.

**5279 Urban Soils and Ecosystem Services: Assessment and Restoration** U G 3

A comprehensive study focused on assessment and restoration of urban soil to provide essential ecosystem services. Urban soil laboratory provides hands-on experience with soil assessment and restoration.

**5280 Stream Ecology** U G 4

Structure, function, and biota of streams and rivers. Emphasis on ecosystem processes and community dynamics over space and time. Conservation, restoration, water policy, and environment-justice issues are also addressed.  
Prereq: 3300, or Grad standing, or permission of instructor.

**5310 Ecological Engineering and Science** U G 4

Definition, classification, and practice of Ecological Engineering. Course explores ecological ecosystems, ecosystem restoration, and the utilization of natural processes to provide societal services and benefits to nature.  
Prereq: One course in Biology, Ecology, Engineering, or Geology, and Jr standing or above. Not open to students with credit for EnvEng 5310 or FABEng 5310. Cross-listed in EnvEng and FABEng.

**5320 Forest Management** U G 3

Application of biological, economic, and planning principles to address the sustainable management of forest resources with emphasis of the timber resource and associated products.  
Sp Sem. Prereq: 3323 (323) and 3333 (333), or Grad standing, or permission of instructor. Not open to students with credit for 635.

**5325 Forest and Public Lands Policy** U G 3

Explores important, relevant and leading-edge concepts in U.S. forest and public lands policy. Emphasizes political, legal, and administrative issues of federal and state lands, including forests, parks, rangelands, and wildlife refuges. Moderate proficiency with GIS expected.  
Prereq: 3200, or Grad standing.

**5340 Forest Ecosystem Management** U G 3

Concepts and methods applied to managing forests across broad landscapes for biodiversity, multiple uses, and ecosystem integrity within the context of traditional forest management.  
Au Sem. 2 1.5-hr cl. Prereq: Sr or grad standing, and permission of instructor. Not open to students with credit for 734.

**5348 Aquatic Population Ecology & Management** U G 3

Applies concepts and principles from the fields of population ecology, demography and population genetics to current conservation and management problems facing populations of aquatic organisms.  
Prereq: 3300 or EEOB 3410, or Grad standing, or permission of instructor.

## Environment and Natural Resources 201

<b>5350.01</b>	<b>Taxonomy and Behavior of Aquatic Invertebrates</b>	<b>U G</b>	<b>3</b>
Taxonomy and behavior of the major groups of aquatic invertebrates, with an emphasis on North American freshwater macroinvertebrates. 1-2 required field trips. Prereq or concur: 5280, or permission of instructor. Not open to students with credit for Entmly 5350.01. Cross-listed in Entmly.			
<b>5350.02</b>	<b>Taxonomy and Behavior of Fishes</b>	<b>U G</b>	<b>3</b>
Taxonomy and behavior of the major groups of fishes, with an emphasis on North American freshwater fishes.			
<b>5355</b>	<b>Aquaculture</b>	<b>U G</b>	<b>3</b>
Overview of physical, biological, and economical factors influencing fish culture systems. World fish production practice comparisons. Emphasis on propagation and conservation efforts. 3 cl, 1 4-hr lab, 2 hatchery trips. Prereq: 2000, and 3300 or BIOCHEM 4511, and CHEM 1210, or grad standing. Not open to students with credit for 628.			
<b>5358</b>	<b>Applied Vertebrate Physiological Ecology</b>	<b>U G</b>	<b>3</b>
An examination of the physiological responses of vertebrate animals to human-induced environmental change, and the consequences of these responses for individuals and populations. This will be accomplished by an exploration of the current primary literature. SP semester only. Prereq: EEOB 3410 or permission of instructor.			
<b>5360</b>	<b>Principles of Wildlife Ecology and Management</b>	<b>U G</b>	<b>3</b>
Principles of population and community ecology applied to conservation and mgmt of terrestrial vertebrates. Principles of wildlife management including social and economic factors. Au Sem. Prereq: Not open to students with credit for 623.			
<b>5362</b>	<b>Wildlife Ecology Methods</b>	<b>U G</b>	<b>3</b>
Methods used by wildlife ecologists to measure population characteristics and habitat quality for wild terrestrial vertebrates. 1-2 Sat and 1 full weekend field trips required. Au Sem. Prereq: 2000, 3300, Stat 1450, or Grad standing. Not open to students with credit for 662.			
<b>5364.01</b>	<b>Mammalian Wildlife Biology and Management</b>	<b>U G</b>	<b>3</b>
Identification, ecology, and population management of North American mammals. 1-2 Sat field trips required. Au Sem. Prereq: 3300 (319) or equiv, or Grad standing, or permission of instructor. Not open to students with credit for 624.			
<b>5364.02</b>	<b>Avian Wildlife Biology and Management</b>	<b>U G</b>	<b>3</b>
Identification, ecology, and population management of North American birds. 1-2 Sat field trips required. Sp Sem. Prereq: 3300 (319) or equiv, or Grad standing, or permission of instructor. Not open to students with credit for 624.			
<b>5370</b>	<b>Management of Wildlife Habitat</b>	<b>U G</b>	<b>3</b>
Introduction to the principles of wildlife-habitat relationships, natural history of major North American ecosystems with an Ohio focus, and the conservation and management of wildlife habitats within those ecosystems. Prereq: 3300, or Grad standing.			
<b>5374</b>	<b>Landscape Ecology for Natural Resource Management</b>	<b>U G</b>	<b>3</b>
In this course, students will gain a practical working understanding of landscape ecology, with the goals of understanding how landscape processes operate at different scales, knowing how to assess spatial patterns and processes, and understanding how landscape ecology principles and theory apply to natural resource assessment and management. Prereq: Grad standing, or permission of instructor.			
<b>5400</b>	<b>Interventions to Promote Pro-environmental Behavior</b>	<b>U G</b>	<b>3</b>
This course focuses on using psychology to change human behavior in service of sustainability. We will explore a variety of approaches for promoting pro-environmental behavior. You will learn how to design and evaluate behavioral intervention programs. Prereq: 3400 or Psych 1100, or permission of instructor.			
<b>5451</b>	<b>Water Policy and Governance</b>	<b>U G</b>	<b>3</b>
This class examines institutions to manage water effectively at a variety of levels -state, federal, and international- and analyzes how they affect water access and use in different areas (agriculture, energy, etc.). Students in the class will also engage in a careful examination of the sources of conflict and cooperation among water stakeholders on a regional and global scale. Prereq: 3200 or 4000, or Grad standing.			
<b>5480</b>	<b>Local Peoples and International Conservation</b>	<b>U G</b>	<b>3</b>
Uses interdisciplinary thinking to explore the global environmental crises and the conflicts between indigenous/local peoples, conservationists, and policy makers regarding natural resource use. The course examines biodiversity conservation, protected areas, community-based conservation, global inequities, environmental history and politics, and sustainable development.			
<b>5560</b>	<b>The Dynamics of Ecosystem Restoration</b>	<b>U G</b>	<b>3</b>
Ecosystems undergoing restoration are dynamic and witness major changes in their species diversity, composition, and ecosystem function. This course develops an understanding of how biotic and abiotic conditions interact with management to influence ecosystems' development. EEOB 3410 is recommended for success in this course. Prereq: 3800 and 4800; or Grad standing; or permission of instructor.			

<b>5600</b>	<b>Sustainable Agriculture and Food Systems</b>	<b>U G</b>	<b>3</b>
Integrative look at the social, economic, and production/environmental dimensions of sustainable agriculture and food systems. Particular attention to sociological, soil science and related disciplinary perspectives. Prereq: 3000 (300.01) and 3500, or grad standing.			
<b>5640</b>	<b>Natural Resources Program Planning</b>	<b>U G</b>	<b>3</b>
Inventory and evaluation of natural resources for program planning with consideration of goals, objectives and actions, budgeting, and planning documents. Prereq: 3600. Prereq or concur: 3200 and 3700; or Grad standing.			
<b>5642</b>	<b>Environment and Natural Resources Administration</b>	<b>U G</b>	<b>3</b>
Organization and administration of environment and natural resource agencies and non-governmental organizations. Sp Sem. Prereq: 4000 (400), or grad standing, or permission of instructor. Not open to students with credit for 642.			
<b>5649</b>	<b>Wildlife Conservation Policy</b>	<b>U G</b>	<b>3</b>
Overview of fish and wildlife policy in the US and key issues affecting wildlife conservation in North America. Sp Sem. Prereq: 4000 (400), or Grad standing. Not open to students with credit for 649.			
<b>5690</b>	<b>Workshop in Environmental Education</b>	<b>U G</b>	<b>2</b>
Problems of instruction in environmental education with consideration of both traditional approaches and current developments in content and methodology. Taught at F.T. Stone Lab. Su Sem. Prereq: Jr standing or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5790.06</b>	<b>Iceland Education Abroad Seminar</b>	<b>U G</b>	<b>1</b>
Pre-departure preparation for Iceland Study Abroad. Provides a general introduction to the country so that learning opportunities in-country will be maximized. Prereq: Accepted and committed to participate in the SENR Study Abroad Program in Iceland.			
<b>5790.07</b>	<b>Dominican Republic Study Abroad Seminar</b>	<b>U G</b>	<b>1</b>
Pre-departure preparation for Dominican Republic Study Abroad. Prereq: Accepted and committed to participate in the SENR Study Abroad Program in Dominican Republic.			
<b>5790.08</b>	<b>China Research Abroad Seminar</b>	<b>U G</b>	<b>1</b>
Pre-departure seminar for students participating in the China Research Abroad trip. Students will develop a research project during this course with the guidance from the instructor, creating the protocols necessary to execute the project in China. Prereq: Students must be participating in the China Research Study Abroad program. This course is graded S/U.			
<b>5790.10</b>	<b>Antarctica Study Abroad Seminar</b>	<b>U G</b>	<b>1</b>
Pre-departure preparation for Antarctica study abroad. Provides general introduction to the country so that learning opportunities in-country will be maximized. Prereq: Acceptance into the Antarctica Study Abroad. Not open to students with credit for EarthSc 5790.10. Cross-listed in EarthSc.			
<b>5790.11</b>	<b>Tanzania Study Abroad Seminar</b>	<b>U G</b>	<b>3</b>
Pre-departure preparation for Tanzania Study Abroad. Prereq: Acceptance into the Tanzania Study Abroad program.			
<b>5797.01</b>	<b>Study at a Foreign Institution: Australia</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Au, Sp, Su Sems. Prereq: Permission of dept chairperson. Not open to students with 30 cr hrs or 2 completions of 5797 (697). Repeatable to a maximum of 30 cr hrs or 2 completions. This course is progress graded.			
<b>5797.02</b>	<b>Study at a Foreign Institution: Australia</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of resident director. Not open to students with 2 completions or 30 cr hrs of 5797 (697). This course is progress graded.			
<b>5797.03</b>	<b>Study at a Foreign Institution: New Zealand</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of resident director. Not open to students with 30 cr hrs or 2 completions of 5797 (697). This course is progress graded.			
<b>5797.04</b>	<b>Study at a Foreign Institution: New Zealand</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of resident director. Not open to students with 30 cr hrs or 2 completions of 5797 (697). This course is progress graded.			
<b>5797.05</b>	<b>Study at a Foreign Institution: Fiji</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of resident director. Not open to students with 2 completions of 5797 (697). This course is progress graded.			

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<b>5797.06</b>	<b>Study at a Foreign Institution: Iceland</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of dept chairperson.			
<b>5797.07</b>	<b>Study at a Foreign Institution: Dominican Republic</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of the resident director. Not open to students with 2 completions of 5797 (697). This course is progress graded.			
<b>5797.08</b>	<b>Study at a Foreign Institution: China Research</b>	<b>U G</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of resident director. Not open to students with 2 completions of 5797 (697). This course is progress graded.			
<b>5797.09</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 15</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students pay OSU and other fees. Prereq: Permission of department chairperson. Not open to students with 2 completions or 30 or hrs of 5797 (697). Repeatable to a maximum of 30 cr hrs or 2 completions. This course is progress graded.			
<b>5797.10</b>	<b>Study at a Foreign Institution: Antarctica</b>	<b>U G</b>	<b>3</b>
Two weeks of field studies in Antarctica and Ushuaia, Argentina. This course is a collaborative effort between Ohio State, American Universities International Programs, University of Canterbury, New Zealand, and Gateway Antarctica: Centre for Antarctic Studies and Research. Prereq: Acceptance into the Antarctica Study Abroad program. Concur: 5790.10. Not open to students with credit for EarthSc 5797.10. Cross-listed in EarthSc.			
<b>5797.11</b>	<b>Study at a Foreign Institution: Tanzania</b>	<b>U G</b>	<b>3</b>
Three weeks of field studies in Tanzania. Prereq: 5790.11.			
<b>6000</b>	<b>Research in Environment and Natural Resources</b>	<b>G</b>	<b>2</b>
The use of science and research to address natural resource problems; development of a thesis proposal. Au Sem. Prereq: Grad standing. Not open to students with credit for 800. This course is graded S/U.			
<b>6100</b>	<b>Advanced Principles in Environmental Science</b>	<b>G</b>	<b>3</b>
This course will cover principal concepts of environmental science including global environmental challenges. A major focus of the course will be to understand different global nutrient cycles and their linkages to pressing environmental issues. A special emphasis will be placed on the ecological and social science frameworks required to manage critical air, soil, and water resources.			
<b>6193</b>	<b>Individual Studies in Environment and Natural Resources</b>	<b>G</b>	<b>1 - 3</b>
Individual Studies in Environment and Natural Resources. Au, Sp, Su Sems. May Term. Prereq: Permission of instructor. Not open to students with 9 cr hrs for 6193 (693). Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6194</b>	<b>Advanced Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group studies on the science and discipline of environmental and natural resources encompassed in various developing and special topics. Au, Sp Sems. Prereq: Permission of instructor. Not open to students with 6 cr hrs or 2 completions for 894. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>6400</b>	<b>Theories in Environmental Social Sciences</b>	<b>G</b>	<b>3</b>
This course provides a broad, interdisciplinary overview of theories and frameworks for understanding and addressing environmental and natural resource management dilemmas. The primary goals of this course are to introduce graduate students to (1) theories that explain why/how human beings impact their environment, and (2) interdisciplinary frameworks for addressing environmental problems.			
<b>6510</b>	<b>Research Design for the Environmental Social Sciences</b>	<b>G</b>	<b>3</b>
Introduction to designing research for building and testing theory in environmental social science disciplines. Bridges qualitative and quantitative research approaches. Prereq: 6000, or permission of instructor. Not open to students with credit for 8510.			
<b>7004</b>	<b>Social-Ecological Systems</b>	<b>G</b>	<b>3</b>
This course provides an overview of frameworks, theories and methods used in the interdisciplinary study of social-ecological systems, including complex adaptive systems, resilience, institutional analysis, cultural evolution, ecosystem services, and coupled human and natural systems. Students will also learn how to effectively collaborate in interdisciplinary studies of social-ecological systems. Prereq: Grad standing. Not open to students with credit for Anthropol 7004. Cross-listed in Anthropol.			
<b>7150</b>	<b>Environment, Risk, and Decision Making</b>	<b>G</b>	<b>3</b>
Theory of individual and participatory decision making processes under risk and uncertainty and applications to improve decision making in environmental risk management contexts. Prereq: Not open to students with credit for 8150.			

<b>7191</b>	<b>MENR Internship</b>	<b>G</b>	<b>3</b>
Internship experience for Master of Environment and Natural Resources (MENR) program. Prereq: Enrollment in the Master of Environment and Natural Resources program.			
<b>7333</b>	<b>Successional Dynamics of Forests</b>	<b>G</b>	<b>3</b>
Analysis of past development of forest stands; examination of major processes causing changes over time in communities of trees. One or more all-day field trips. * Sp Sem (odd yrs). Prereq: Grad standing, and permission of instructor. Not open to students with credit for 733.			
<b>7380</b>	<b>Climate and Society</b>	<b>G</b>	<b>3</b>
Examines links between climatic changes and human societies and examines social influences on our current state of knowledge, impacts, and potential responses. Au Sem. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 738.			
<b>7400</b>	<b>Communicating Environmental Risk</b>	<b>G</b>	<b>3</b>
Introduction to the design and implementation of public-focused risk communication as it relates to environmental, agricultural and public health contexts. Sp Sem. Prereq: Grad standing, or permission of instructor.			
<b>7425</b>	<b>Collective Action in Environmental Governance</b>	<b>G</b>	<b>3</b>
Introduction to the theories and methods for evaluating collective action in environmental governance contexts. Prereq: Grad standing.			
<b>7430</b>	<b>Sustainability Psychology</b>	<b>G</b>	<b>3</b>
This course helps students expand their understanding of the psychological bases of environmental problems. It focuses on leveraging psychological tools to address such problems. Students learn about theories and methods relevant to behavior change, explore the applicability of these approaches to changing environmental behaviors, and gain practical experience doing this with real-world problems. Prereq: 3400, 5400, or Psych 1100, or permission of instructor.			
<b>7450</b>	<b>Frameworks and Theories of Environmental Policy</b>	<b>G</b>	<b>3</b>
This course provides students with an in-depth look at the theories and frameworks that explain how governance systems in complex social-ecological systems (and the institutions that shape them) can successfully tackle environmental problems at the local, national, and international levels.			
<b>7480</b>	<b>Human Values and Nature Conservation</b>	<b>G</b>	<b>3</b>
This course makes a cross-disciplinary examination of theories of human values and related phenomena (e.g., value orientations, worldviews, moral foundations), explores their use in explaining conservation-related judgments, decisions, and behaviors, and discusses their implications for sustainability.			
<b>7520</b>	<b>Environmental Science and Law</b>	<b>G</b>	<b>3</b>
This course introduces students to the laws and legal systems that address environmental issues, with an emphasis on the significance of science and technology. Interdisciplinary case-studies will complement the coursework. Prereq: 4000, or Grad standing, or permission of instructor.			
<b>7530</b>	<b>Soils and Carbon: Stabilization and Permanence</b>	<b>G</b>	<b>3</b>
Soil carbon, globally, is larger than both atmospheric and terrestrial biomass carbon stocks, but how permanent is soil carbon and in what forms? Minerals play an important role in carbon stability and permanence. Students gain experience on methods to investigate soil carbon stabilization, mineralogy and soil carbon permanence, and mechanistic understanding of organo-mineral interactions.			
<b>7580</b>	<b>Root and Rhizosphere Ecology</b>	<b>G</b>	<b>2</b>
The rhizosphere mediates plant nutrient acquisition, sustains microbial communities, contributes to disease suppression, and regulates global nutrient cycles, directly impacting crop production and ecosystem services. This course will provide an overview of root morphology, root production and turnover, rhizosphere communities, nutrient cycling and rhizosphere responses to climate change.			
<b>7650</b>	<b>Applied Bayesian Hierarchical Models in Natural Resources</b>	<b>G</b>	<b>3</b>
This is an applied graduate-level course that will provide students with the skills to implement, diagnose, and interpret hierarchical models fit in a Bayesian framework.			
<b>7888</b>	<b>MENR Project</b>	<b>G</b>	<b>1 - 3</b>
Conducting and reporting MENR applied science project. Prereq: Grad standing, and permission of advisor. Not open to students with 9 cr hrs for 7888 (893). Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>7981</b>	<b>MENR Seminar</b>	<b>G</b>	<b>1</b>
Environmental professional practice-oriented seminars and forums. Prereq: Enrollment in the Master of Environment and Natural Resources (MENR) program. This course is graded S/U. Repeatable to a maximum of 4 cr hrs.			
<b>8375</b>	<b>Design of Natural Resource Studies</b>	<b>G</b>	<b>3</b>
This is a discussion-driven course that will emphasize student understanding of different types of study design, critical considerations when designing studies, and appropriate analytical approaches and inferential frameworks. The course is practical in that students can use this course as an opportunity to develop or flesh out the design of a study relevant to their graduate research.			

<b>8600</b>	<b>Introduction to R for Environmental Sciences</b>	<b>G</b>	<b>2</b>
Hands-on course intended to give students a broad overview and introduction to R, a language and environment for statistical computing and graphics.			
<b>8780</b>	<b>Quantitative Methods for Environment and Natural Resources</b>	<b>G</b>	<b>3</b>
Multivariate statistical methods used by natural resource scientists to study environmental relationships of plants and animals. Analytical methods are explained with real Forestry, Fisheries, and Wildlife data sets. * Sp Sem (even years). Prereq: Stat 5302 (530) or equiv, and Grad standing; or permission of instructor. Not open to students with credit for 822.			
<b>8785</b>	<b>Research Paradigms</b>	<b>G</b>	<b>3</b>
An examination of research paradigms and techniques used in the disciplines involved in natural resource science and management. * Sp Sem (odd years). Prereq: Doct standing, or permission of instructor. Not open to students with credit for 985.			
<b>8890.01</b>	<b>Fisheries and Wildlife Science Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in fisheries and wildlife science in environment and natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8890.02</b>	<b>Ecological Restoration Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in ecological restoration in environment and natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8890.03</b>	<b>Ecosystem Science Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in ecosystem science in environment and natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8890.04</b>	<b>Soil Science Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in soil science in environment and natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8890.05</b>	<b>Forest Science Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in forest science in environment natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8890.06</b>	<b>Environmental Social Sciences Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in environmental social sciences in environment and natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8890.07</b>	<b>Rural Sociology Seminar</b>	<b>G</b>	<b>1 - 12</b>
Seminar on special topics in rural sociology in environment and natural resources. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 96 cr hrs or 8 completions.			
<b>8897</b>	<b>Research Proposal Symposium</b>	<b>G</b>	<b>1</b>
A symposium for graduate students to present thesis and dissertation proposals. Arr. Sp Sem. Prereq: Grad standing. Not open to students with 2 cr hrs or 2 completions for 897. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>8980</b>	<b>Environment and Natural Resources Seminar</b>	<b>G</b>	<b>1</b>
Required seminar for all MS and PhD graduate students in environment and natural resources. Au, Sp Sems. Prereq: Grad standing. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>8998</b>	<b>Research</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis or dissertation purposes only. Prereq: Grad standing. Repeatable. This course is graded S/U.			

## Environmental Engineering

<b>2100</b>	<b>Environmental Engineering Analytical Methods</b>	<b>U</b>	<b>3</b>
Application of analytical methods to calculate, measure and interpret chemical characteristics of water, soil, and air. Prereq: Chem 1220 (122) or 1250 (125), and enrollment in CivilEn major or EnvEng major or minor. Not open to students with credit for 610.			
<b>2193</b>	<b>Individual Studies in Environmental Engineering</b>	<b>U</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Environmental Engineering</b>	<b>U</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

<b>3200</b>	<b>Fundamentals of Environmental Engineering</b>	<b>U</b>	<b>3</b>
Quantitative assessment of water quality, air quality, and solid/hazardous waste management, with an emphasis on minimizing human health and environmental impacts through sustainable design. Prereq: Chem 1210 or 1250, and CivilEn or EnvEng major or EnvEng minor. Not open to students with credit for 6200.			
<b>3210</b>	<b>Environmental Engineering Unit Operations</b>	<b>U</b>	<b>3</b>
Selection and Design of Unit Operations and Processes used in Environmental Engineering. Prereq: 413 or CivilEn 3130 (413), and Chem 1220 (122) or 1250 (125), or permission of instructor. Not open to students with credit for 520 or CivilEn 520.			
<b>4090</b>	<b>Environmental Engineering Capstone Design</b>	<b>U</b>	<b>3</b>
Culminating design course for the Environmental Engineering program. Must be taken as close to graduation as possible. Prereq: Sr standing. Not open to students with credit for 619.			
<b>4193</b>	<b>Individual Studies in Environmental Engineering</b>	<b>U</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Environmental Engineering</b>	<b>U</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4200</b>	<b>Environmental Engineering Unit Operations Lab</b>	<b>U</b>	<b>1</b>
Laboratory measurements and analysis of environmental engineering treatment processes. Prereq: 2100 (610) or CivilEn 610, and EnvEng 3210 (520) or CivilEn 520. Concur: 5110 (711). Not open to students with credit for 620.			
<b>4218</b>	<b>Measurement and Modeling of Climate Change</b>	<b>U</b>	<b>3</b>
A study of the atmospheric boundary layer, its interaction with the land surface and vegetation in particular, and hand-on experience with micrometeorological and eddy-covariance instrumentation and data analysis. Prereq: CivilEn 2060, or permission of instructor.			
<b>4400</b>	<b>Integrated Environmental Chemical Fate and Transport</b>	<b>U</b>	<b>3</b>
Fate and transport of pollutants within and between air, water, and soil. This requires an understanding of thermodynamics and mass transfer concepts related to environmental engineering, which is the focus of the first portion of the course. In the second portion, students apply these concepts to develop predictive fate and transport models. Prereq: 3200 and CivilEn 3130, or permission of instructor.			
<b>4600</b>	<b>Assessment for Human Rights and Sustainability</b>	<b>U</b>	<b>3</b>
Foundational concepts of human rights and environmental impacts pertaining to global supply chains. Regulations and voluntary standards in engineering-intensive sectors, including infrastructure, biofuels, electronics. Case study analysis of corporate assessment practices for labor rights protection and environmental impacts.			
<b>4998</b>	<b>Undergraduate Research in Environmental Engineering</b>	<b>U</b>	<b>1 - 5</b>
Opportunity for undergraduate students to conduct research in Civil and Environmental Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research in Environmental Engineering</b>	<b>U</b>	<b>1 - 5</b>
Supervised undergraduate honors research on various topics in Environmental Engineering. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4999</b>	<b>Environmental Engineering Research for Thesis</b>	<b>U</b>	<b>1 - 5</b>
Supervised research and project work. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is progress graded (S/U).			
<b>4999H</b>	<b>Environmental Engineering Research for Thesis</b>	<b>U</b>	<b>1 - 5</b>
Supervised research and project work arranged individually for honors students. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is progress graded (S/U).			
<b>5110</b>	<b>Environmental Engineering Bioprocesses</b>	<b>U G</b>	<b>3</b>
Principles and design of biological processes in environmental engineering. Prereq: 3200 (511), or Grad standing. Not open to students with credit for 711.			
<b>5120</b>	<b>Bioremediation of Groundwater and Soil</b>	<b>U G</b>	<b>3</b>
An overview of biotechnology methods for remediation of groundwater and soils. Overview of theory and bio-remediation component design. Includes a study of the role of key microbial groups capable of transforming common contaminants in subsurface media with a particular emphasis on molecular genetic biotechnology methods to identify and document their ecology and metabolic condition. Prereq: A course in Micrbio; or Grad standing; or permission of instructor. Not open to students with credit for CivilEn 818.			

## 204 Environmental Engineering

<b>5140</b>	<b>Air Quality Engineering</b>	<b>U G</b>	<b>3</b>
This course introduces several concepts which will provide students with a basic knowledge of several air quality issues. We will first discuss sources and classifications of air pollutants, followed by a brief primer on relevant atmospheric science. Following this, we will focus on two aspects related to atmospheric chemistry: tropospheric ozone formation and secondary aerosol production. Prereq: Chem 1220,1250, or equiv, and Math 2177, 2174, or 2415, and enrollment in CivilEn or EnvEng major; or Grad standing; or permission of instructor.			
<b>5170</b>	<b>Sustainability and Pollution Prevention Practices</b>	<b>U G</b>	<b>3</b>
An introduction to concepts of sustainability and pollution prevention with particular application to solid waste generation, disposal and management. Prereq: 3200 (511), or Grad standing, or permission of instructor. Not open to students with credit for 717.			
<b>5194</b>	<b>Group Studies in Environmental Engineering</b>	<b>U G</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>5195</b>	<b>Engineering Design for Environmental Health</b>	<b>U G</b>	<b>3</b>
Students in this course will learn how to incorporate health information into the engineering design process. This material complements risk assessment by focusing on the design of engineering systems. Course will discuss balancing financial, health, performance, and other considerations. Quantitative analysis will be conducted in soil, water, air, buildings, and occupational health scenarios. Prereq: Math 1151,1161.01, or 1161.02, and Chem 1210 or 1250, and enrollment in the CivilEn, EnvEng, or PubHEHS major program; or grad standing; or permission of instructor.			
<b>5210</b>	<b>Advanced Physical Chemical Treatment Processes</b>	<b>U G</b>	<b>3</b>
Principles and design of physical and chemical processes for water and wastewater treatment including mixing, mass transfer, chemical kinetics, oxidation-reduction, disinfection, emerging contaminants, and water reuse. Prereq: 3210 (520) or CivilEn 520, or Grad standing in Engineering or EarthSc, or permission of instructor. Not open to students with credit for CivilEn 810.			
<b>5217</b>	<b>Applied Mathematical Ecology</b>	<b>U G</b>	<b>3</b>
Description and application of basic methods to model population, communities and the interactions between ecosystems and the earth system. Prereq: CivilEn 2060 (406) or equivalent, and Engr 1221 or CSE 1221, and enrollment in CivilEn or EnvEng major; or Grad standing; or permission of instructor. Not open to students with credit for CivilEn 817.			
<b>5410</b>	<b>Hazardous Waste Management and Remediation</b>	<b>U G</b>	<b>2</b>
Environmental regulations; handling of hazardous wastes; risk assessment; site remediation processes; remedial alternatives; implementation; case studies. Prereq: 3200 and CivilEn 3130, or Grad standing; or permission of instructor. Not open to students with credit for 714.			
<b>5600</b>	<b>Science, Engineering, and Public Policy</b>	<b>U G</b>	<b>3</b>
Presents a history of the interactions between science, engineering, and public policy in the United States and in the context of global concerns (e.g. climate change, competitiveness), inquire into how various federal government, universities, & corporations conduct & fund science and engineering & explore how public sector interests & processes influence sci, engr & public policy. Prereq: Jr, Sr, or Grad standing; or permission of instructor. Cross-listed in PubAfrs.			
<b>5718</b>	<b>Aquatic Chemistry</b>	<b>U G</b>	<b>3</b>
Examination of the processes that control chemical equilibria in natural waters: acid/base reactions, metal complexation/speciation and oxidation-reduction processes. Intended for students in EarthSci, CivilEn, and the Grad EnvSci program. Prereq: Chem 1220 or above, and Math 1151 or above; or equivalents. Not open to students with credit for EarthSc 5718. Cross-listed in EarthSc.			
<b>5719</b>	<b>Environmental Organic Chemistry</b>	<b>U G</b>	<b>3</b>
Fate and distribution of organic pollutants in the environment including aqueous solubility, vapor pressure, environmental partition coefficients, and transformation reactions. Intended for students in EarthSc, CivilEn, and the Grad EnvSci program. Prereq: 5718 and Chem 4200, or permission of instructor. Not open to students with credit for EarthSc 5719. Cross-listed in EarthSc.			
<b>5760</b>	<b>Design of Urban Stormwater Control Measures</b>	<b>U G</b>	<b>3</b>
Modification of hydrologic methods for urban systems, urban pollutants of concern, stormwater regulations, low impact development, green infrastructure, design of stormwater control measures [(SCMs), also known as Best Management Practices (BMPs)], and discussions of stormwater control performance. Design focused projects that offer real world challenges, diverse set of method and tools. Prereq: CivilEn 3160 or FABEng 2720, or Grad standing in Engineering, or permission of instructor. Not open to students with credit for FABEng 5760. Cross-listed in FABEng.			
<b>5850</b>	<b>Advanced Topics in Environmental Engineering</b>	<b>U G</b>	<b>1 - 3</b>
Exploration of advanced topics in Environmental Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.			

<b>5880</b>	<b>Environmental Engineering Seminar</b>	<b>U G</b>	<b>1</b>
Seminar course which presents current research findings on Environmental Engineering and science. Prereq: Jr, Sr, or Grad standing in Environmental Engineering, and permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>6020</b>	<b>Foundations of Data-Driven Sustainable Energy Systems</b>	<b>G</b>	<b>3</b>
Introduction to issues impacting sustainable energy systems across technology, law and policy, business models, resilience, data, geospatial, and decision sciences. Prereq: Enrollment in Data-Driven Sustainable Energy Systems Graduate Interdisciplinary Specialization, or permission of instructor. Not open to students with credit for AEDEcon 6500, FABEng 6020, Geog 6020, ISE 6020, or PubAfrs 6020. Cross-listed in AEDEcon 6500, FABEng 6020, Geog 6020, ISE 6020, and PubAfrs 6020.			
<b>6100</b>	<b>Environmental Engineering Analytical Methods</b>	<b>G</b>	<b>3</b>
Application of analytical methods to calculate, measure and interpret chemical characteristics of water, soil, and air. Prereq: Chem 1220 (122) or 1250 (125), or Grad standing. Not open to students with credit for 2100 (610) or CivilEn 610.			
<b>6193</b>	<b>Individual Studies in Environmental Engineering</b>	<b>G</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies in Environmental Engineering</b>	<b>G</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>6200</b>	<b>Fundamentals of Environmental Engineering</b>	<b>G</b>	<b>3</b>
Quantitative assessment of water quality, air quality, and solid/hazardous waste management, with an emphasis on minimizing human health and environmental impacts through sustainable design. Prereq: Chem 1220 (122) or 1250 (125), or Grad standing, or permission of instructor. Not open to students with credit for 3200 (511) or CivilEn 511.			
<b>6210</b>	<b>Environmental Engineering Unit Operations</b>	<b>G</b>	<b>3</b>
Selection and Design of Unit Operations and Processes used in Environmental Engineering. Prereq: 413 or CivilEn 3130 (413), and Chem 1220 (122) or 1250 (125); or Grad standing; or permission of instructor. Not open to students with credit for 3210 (520) or CivilEn 520.			
<b>6218</b>	<b>Measurement and Modeling of Climate Change for Graduate Students</b>	<b>G</b>	<b>3</b>
The course will focus on the science behind climate change, and specifically on physical processes at the earth surface, and the interactions between the ecosystem, human activities and climate change. Design of data analysis research project, testing hypotheses regarding climate change and its effects using observational data, hands-on climate data analysis experience through personal project. Prereq: Grad standing in CivilEn or EnvEng, or permission of instructor.			
<b>6220</b>	<b>Data Analysis in Environmental Engineering</b>	<b>G</b>	<b>3</b>
Application of programming and statistical methods for engineering data analysis. Will explore distribution, variance, and multivariate methods. Will provide a deeper understanding of analysis theories in the space, time, and spectral domain. Students will develop computer programming toolboxes and theoretical skills for analyzing and modeling data in their own research. Prereq: Stat 3450, 3460, 3470, or CivilEn 2050, or equiv; and Grad standing in the Civil Engineering or Environmental Science Graduate programs.			
<b>6400</b>	<b>Integrated Environmental Chemical Fate and Transport for Graduate Students</b>	<b>G</b>	<b>3</b>
Fate and transport of pollutants within and between air, water, and soil. Understanding this fate and transport requires an understanding of thermodynamics and mass transfer concepts related to environmental engineering, which is the focus of the first portion of the course. In the second portion, students apply these concepts to develop predictive fate and transport models. Prereq: Grad standing in Engr, or permission of instructor.			
<b>6600</b>	<b>Assessment for Human Rights and Sustainability</b>	<b>G</b>	<b>3</b>
Foundational concepts of human rights and environmental impacts pertaining to global supply chains. Regulations and voluntary standards in engineering-intensive sectors, including infrastructure, biofuels, electronics. Case study analysis of corporate assessment practices for labor rights protection and environmental impacts. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4600.			
<b>6610</b>	<b>Analytic Frameworks for Analysis of Science, Engineering, and Policy</b>	<b>G</b>	<b>3</b>
Introduces a number of analytic frameworks and tools that are used to address issues where science and engineering are important considerations for public policy. Complements EnvEng/PubAfrs 5600 'Science, Engineering, and Public Policy', which is a survey of the interconnectedness of science, engineering, and public policy. Prereq: Grad standing, or permission of instructor.			
<b>6999</b>	<b>Environmental Engineering Research Thesis</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is progress graded (S/U).			

## Environmental Engineering 205

<b>7220</b>	<b>Colloidal and Interfacial Processes in Aquatic Systems</b>	<b>G</b>	<b>3</b>
Fundamental concepts of the chemistry of the solid-water interface, adsorption/desorption, coagulation, and deposition in natural and engineered systems. Prereq: 2100 (610), or Grad standing, or permission of instructor. Not open to students with credit for both CivilEn 819 and 822.			
<b>8193</b>	<b>Individual Studies in Environmental Engineering</b>	<b>G</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Environmental Engineering</b>	<b>G</b>	<b>1 - 5</b>
Provides groups of students opportunities to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>8998</b>	<b>Graduate Research in Environmental Engineering</b>	<b>G</b>	<b>1 - 15</b>
Opportunity for graduate students to conduct research in Environmental Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>8999</b>	<b>Environmental Engineering Research Dissertation</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is progress graded (S/U).			

### Environmental Science

<b>6193</b>	<b>Individual Studies in Environmental Sciences</b>	<b>G</b>	<b>1 - 12</b>
Afford the qualified student the opportunity for independent reading, study, practical experience, or laboratory work in specialized field of interest. Au, Sp, Su Sems. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Group studies in environmental sciences. Au, Sp, Su Sems. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.			
<b>7899</b>	<b>Current Issues in Environmental Sciences</b>	<b>G</b>	<b>1</b>
Graduate seminar where faculty from within and outside the University and graduating students will present their research. Au, Sp Sems. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			

### Environmental Sciences Technology

<b>1201T</b>	<b>Exploring Environmental Sciences</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			

### Evolution, Ecology and Organismal Biology

<b>1910</b>	<b>Introduction to Biological Studies- Local Plants (Stone Lab)</b>	<b>U</b>	<b>2</b>
Structures, processes, and stages of the plant life cycle; common families of flowering plants; plant geography, ecology, and conservation; and uses of plants. 1-wk course available summer session at Stone Lab. Prereq: Completion of high school Biology course. Not open to students with credit for 110.			
<b>1911</b>	<b>Climate Change: Mechanisms, Impacts, and Mitigation</b>	<b>U</b>	<b>4</b>
Examination of the basic science of climate change, of the ability to make accurate predictions of future climate, and of the implications for global sustainability by combining perspectives from the physical sciences, the biological sciences, and historical study. Team-taught with faculty members in EarthSc and History. Prereq: Not open to students with credit for History 1911 or EarthSc 1911. GE historical study and nat sci bio and nat sci phys course. Cross-listed in EarthSc and History.			
<b>1920</b>	<b>Introduction to Biological Studies - Birds (Stone Lab)</b>	<b>U</b>	<b>2</b>
An introductory course for students interested in ornithology including bird identification, behavior, and ecology, with an emphasis on field and laboratory techniques. 1-wk course available summer session at Stone Lab. Prereq: Completion of high school Biology course. Not open to students with credit for 126.			
<b>1930</b>	<b>Introduction to Biological Studies - Aquatic Biology (Stone Lab)</b>	<b>U</b>	<b>2</b>
An introduction to the organisms of the ecosystem in freshwater aquatic environments. 1-wk course available summer session at Stone Lab. Prereq: Completion of high school Biology course. Not open to students with credit for 125.			
<b>2210</b>	<b>Biodiversity of Ohio - Plants</b>	<b>U</b>	<b>2</b>
A lecture and field course in identifying common Ohio plants; emphasis on taxonomic principles, use of keys and manuals, and field recognition of plants; includes some Saturday field trips. Prereq: 4 sem cr hrs in Biological Sciences. Not open to students with credit for 210. NS Admis Cond course.			

<b>2220</b>	<b>Biodiversity of Ohio - Birds</b>	<b>U</b>	<b>2</b>
The general biology of birds with emphasis on their natural histories and field identification of local species. Prereq: 4 sem cr hrs in Biological Sciences. Not open to students with credit for 322.			
<b>2250</b>	<b>Dynamics of Dinosaurs</b>	<b>U</b>	<b>2</b>
A review of current information on dinosaur biology, emphasizing scientific approaches to reconstructing dinosaurs as living, dynamic animals. Prereq: 4 sem cr hrs in Biological Sciences or Historical Geology.			
<b>2270</b>	<b>Parasites and Evolution: How Worms, Mosquitoes, etc. Manage Their/Our World</b>	<b>U</b>	<b>2</b>
Introduction to life history of and pathology caused by a number of parasites of invertebrates and vertebrates (including humans). Parasites and disease vectors are used to illustrate broad evolutionary and ecological concepts. Prereq: 4 sem cr hrs in Biological Sciences.			
<b>2410</b>	<b>Biological Invasions: The Ecology and Evolution of Species Introductions</b>	<b>U</b>	<b>3</b>
Invasion ecology is the study of introduced, non-native species and the factors that sometimes lead to their population explosions and negative ecological impacts in the new region. This course will make explicit connections between fundamental concepts in ecology and evolutionary biology, topics specific to invasion ecology, and the idiosyncratic details surrounding particular invasive species. Prereq: One course in Life Sciences (or a related field), or permission of instructor.			
<b>2510</b>	<b>Human Anatomy</b>	<b>U</b>	<b>3</b>
An introduction to human anatomy; small mammal dissection. Prereq: 3 sem cr hrs in Biological Sciences. Not open to students with credit for 235. GE nat sci bio course. NS Admis Cond course.			
<b>2520</b>	<b>Human Physiology</b>	<b>U</b>	<b>3</b>
A survey of the human nervous system, sense organs, muscle function, circulation, respiration, digestion, metabolism, kidney function, and reproduction. Prereq: 3 sem cr hrs in Biological Sciences. Not open to students with credit for 232. GE nat sci bio course. NS Admis Cond course.			
<b>3189</b>	<b>Undergraduate Field Experience or Work</b>	<b>U</b>	<b>1 - 3</b>
Field work or experience. Prereq: 8 cr hrs in Biological Sciences. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is progress graded (S/U).			
<b>3191</b>	<b>Undergraduate Internship</b>	<b>U</b>	<b>1 - 3</b>
Internship held as undergraduate for credit. Prereq: 8 cr hrs in Biological Sciences, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>3193</b>	<b>Undergraduate Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual work in the field of the chosen problem. Prereq: 8 cr hrs in Biological Sciences. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>3194</b>	<b>Undergraduate Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of selected topics in evolution, ecology and organismal biology. Prereq: 8 cr hrs in Biological Sciences. Repeatable to a maximum of 12 cr hrs or 3 completions.			
<b>3270</b>	<b>Infectious Disease Ecology, Evolution, and Transmission</b>	<b>U</b>	<b>3</b>
This course will focus on innate and adaptive immunity, host-pathogen evolution, phenotypic plasticity, host jump, wild life ecology, the role of social behavior, diet, habitat, geography, and life history in disease transmission in human and nonhuman animals. It will also cover research methods, common statistical and geospatial analyses in investigations of infectious diseases. Prereq: Soph standing or above.			
<b>3310.01</b>	<b>Evolution</b>	<b>U</b>	<b>4</b>
Basic conceptual issues and processes in evolution with an emphasis on the ecological basis of adaptation and consequences of natural selection. Also available summer term at Stone Lab. Prereq: Biology 1114 or 1114H, or permission of instructor. Not open to students with credit for 3310 or 3310.02.			
<b>3310.02</b>	<b>Evolution (Hybrid Online)</b>	<b>U</b>	<b>4</b>
This course surveys the many processes that underlie biological evolution and illustrates the patterns they generate, with a focus on adaptation, types of selection, population genetics, species interactions and biodiversity. This course is presented in a hybrid online format. Prereq: Biology 1114 or 1114H, or permission of instructor. Not open to students with credit for 3310 or 3310.01.			
<b>3320</b>	<b>Organismal Diversity</b>	<b>U</b>	<b>3</b>
A survey of organismal diversity and the evolutionary relationships between and within major groups of organisms. Class is laboratory based. Prereq: 3310. Not open to students with credit for 405.01 and 405.02.			

## 206 Evolution, Ecology and Organismal Biology

<b>3410</b>	<b>Ecology</b>	<b>U</b>	<b>4</b>
Distribution and abundance of species, population dynamics, community ecology, ecosystem dynamics, and applied perspectives. Also available summer term at Stone Lab. Prereq: Biology 1114 or 1114H, or permission of instructor. Not open to students with credit for 503.01, 503.02, and 503.03.			
<b>3420</b>	<b>Behavioral Ecology</b>	<b>U</b>	<b>4</b>
Comparative study of animal behaviors, and analysis of their adaptive value, physiological mechanisms, development, and evolution, within their ecological and social context. Also available summer session at Stone Lab. Prereq: Biology 1114 or 1114H, or permission of instructor. Not open to students with credit for 440, 620, 730, or 740.			
<b>3420E</b>	<b>Behavioral Ecology (Honors Embedded)</b>	<b>U</b>	<b>4</b>
Comparative study of animal behaviors, and analysis of their adaptive value, physiological mechanisms, development, and evolution, within their ecological and social context. Prereq: Biology 1114 or 1114H, or permission of instructor. Not open to students with credit for 440, 620, 730, or 740.			
<b>3494</b>	<b>Entering Independent Research</b>	<b>U</b>	<b>3</b>
Designed to equip students in the Natural and Mathematical Sciences with necessary skills to become independent researchers. The main emphasis is given to experimental methods, experimental and quasi-experimental design, hypothesis testing, sampling, research ethics, basic statistics, and presentation of data.			
<b>3498</b>	<b>Undergraduate Research in Behavioral Ecology</b>	<b>U</b>	<b>4</b>
Supervised independent research opportunities in behavioral ecology for undergraduates considering careers in basic scientific research, secondary education, or graduate research programs in biological and behavioral sciences. Formal instruction on experimental research design, literature review, research ethics, and elementary statistical analyses. Prereq: Biology 1113, 1113H, 1114, 1114H, or Soph standing or above; or permission of instructor.			
<b>3510</b>	<b>Cellular and Developmental Biology</b>	<b>U</b>	<b>3</b>
Introduction to the structure and function of animal cells, and to patterns of early development in vertebrates and invertebrates. Prereq: 3310, and Biology 1113 or 1113H. Not open to students with credit for 415 and MolGen 5602.			
<b>3520</b>	<b>Microscopic Anatomy</b>	<b>U</b>	<b>3</b>
Examination and analysis of the functional morphology of cells and tissues of vertebrate animals, with emphasis on mammalian histology. Prereq: Biology 1113 (113), 1114 (114), 1113H (115H), or 1114H (116H).			
<b>3798</b>	<b>Undergraduate Study Tour</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate study tour. Prereq: 8 sem cr hrs in Biological Sciences, and permission of instructor. Not open to students with credit for 698. This course is graded S/U.			
<b>4210</b>	<b>Focused Study of Ecology and Evolution - Vertebrates</b>	<b>U</b>	<b>2</b>
Analysis of the anatomical, physiological, behavioral, and ecological characteristics of the major vertebrate groups. Prereq: 3410. Not open to students with credit for 470.			
<b>4220</b>	<b>Focused Study of Ecology and Evolution - Mammals</b>	<b>U</b>	<b>3</b>
Mammals of the world, their natural history, distribution, taxonomy, and major anatomical and physiological adaptations; study of local species emphasized in lab. Prereq: 3310.			
<b>4230</b>	<b>Focused Study of Ecology and Evolution - Invertebrates</b>	<b>U</b>	<b>2</b>
Analysis of the anatomical, physiological, behavioral and ecological characteristics of the major invertebrate groups. Prereq: 3310.			
<b>4240</b>	<b>Focused Study of Ecology and Evolution - Plants and People</b>	<b>U</b>	<b>3</b>
Overview of the importance of plants to humans. Students will gain an understanding of the interrelations between humans and plants, including plant domestication, history and uses of spices and flavorings derived from plants, as well as non-food uses of plants. Recommended prereq: previous or concurrent enrollment in EEOB 2210. Prereq: 1 course in Biological Sciences (Plant Biology Preferred). Not open to students with credit for 502.			
<b>4410</b>	<b>Conservation Biology</b>	<b>U</b>	<b>3</b>
Application of ecology, population genetics, and biogeography to the study and conservation of biodiversity, threatened communities, and endangered species. Prereq: 3310 and 3410, or permission of instructor. Not open to students with credit for 661.			
<b>4420H</b>	<b>Tropical Field Studies</b>	<b>U</b>	<b>3</b>
This course will give students first-hand knowledge of tropical biology with an emphasis on evolutionary and behavioral ecology. This is an intensive foreign study tour in Panama, a country renowned for its biological diversity. The course includes travel to several tropical habitats and experiences with common field methods in ecology and animal behavior. Prereq: Honors standing, and 3310 or 3410; or permission of instructor.			
<b>4430</b>	<b>Ecological Methods I</b>	<b>U</b>	<b>2</b>
Hands-on course for learning basic field and quantitative methods for ecological studies. Prereq: Biology 1114 or 1114H. Repeatable to a maximum of 8 cr hrs or 4 completions.			

<b>4510</b>	<b>Comparative Vertebrate Anatomy</b>	<b>U</b>	<b>3</b>
Evolutionary trends within vertebrates will be revealed through a study of anatomical homology across representative taxa. Concepts will be expanded upon as students explore the hands-on methods of comparative anatomical study, including dissection and skeletal staining. Prereq: 2 courses in Biological Sciences.			
<b>4520</b>	<b>Comparative Physiology</b>	<b>U</b>	<b>3</b>
Functional systems in invertebrates and vertebrates: respiration, circulation, water, ion, and energy balance; communication; locomotion; and reproduction. Prereq: Biology 1114 or 1114H, and 1 additional course in Biological Sciences. Not open to students with credit for 410.			
<b>4550</b>	<b>Neurobiology of Behavior</b>	<b>U</b>	<b>3</b>
Integration of studies of sensory, integrative and motor systems with evolution and ecology. Prereq: 2 courses in Biological Sciences. Not open to students with credit for 632.			
<b>4560</b>	<b>Comparative Endocrinology</b>	<b>U</b>	<b>2</b>
Introduction to hormones and hormone action; comparison between vertebrates and invertebrates with emphasis on special situations such as metamorphosis. Prereq: 4520 and Biochem 4511, or equiv, or permission of instructor. Not open to students with credit for 550 or Entomol 550. Cross-listed with Entomol 550.			
<b>4950</b>	<b>Field Ecology (Stone Lab)</b>	<b>U</b>	<b>2</b>
Field-based introduction to the distribution and abundance of animals and plants in pond, lake, river, marsh, beach, field, and woodland ecosystems for teachers, undergraduates and graduate students. 1-wk course available summer session at Stone Lab. Prereq: 12 sem cr hrs of Biological Sciences, and GPA 2.5 or above, and Jr standing or above, or permission of instructor. Not open to students with credit for 513.			
<b>4990</b>	<b>Undergraduate Seminar in Mathematical Biology Research</b>	<b>U</b>	<b>1</b>
Seminar on research in mathematical biology and its applications, with an emphasis on evolutionary biology, ecology, neuroscience, and cell biology. Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U. Cross-listed in Math.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research in evolution, ecology, and organismal biology. Prereq: 2 courses in Biological Sciences, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research - Honors</b>	<b>U</b>	<b>1 - 12</b>
Honors undergraduate research in evolution, ecology, and organismal biology. Prereq: Honors standing, and 2 courses in Biological Sciences, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research towards a thesis in Evolution and Ecology, or Zoology. Prereq: 8 cr hrs in Biological Sciences, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>4999H</b>	<b>Undergraduate Thesis Research - Honors</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research towards an honors thesis in Evolution and Ecology, or Zoology. Prereq: Honors standing, and 8 cr hrs in Biological Sciences, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
<b>5210</b>	<b>Spider Biology - Stone Lab</b>	<b>U G</b>	<b>2</b>
Study of the biology of spiders including functional anatomy, behavior, webs and web-building, field and lab methods, identification, and ecology. 1-wk course available summer term at Stone Lab. Special fees assessed. Prereq: GPA 2.5 or above, and completion of 12 sem cr hrs of biological sciences, and Jr standing or above; or permission of instructor.			
<b>5310</b>	<b>Advanced Principles of Evolution</b>	<b>U G</b>	<b>3</b>
Origin of variation in plants and animals with an emphasis on evolutionary processes. Prereq: 3310, or Grad standing. Not open to students with credit for 673.			
<b>5320</b>	<b>Society and Evolution</b>	<b>U G</b>	<b>3</b>
Philosophical and historical survey of the social conflict of scientific and religious perspectives on origins. Prereq: 3310, or Grad standing. Not open to students with credit for 710.			
<b>5330</b>	<b>Population Genetics &amp; Phylogeography</b>	<b>U G</b>	<b>3</b>
An introduction to basic concepts in population genetics and phylogeography. Topics include genetic variation, mutation, equilibrium models, population structure, gene flow, natural selection, historical demography, quantitative genetics, and inbreeding depression. Prereq: 3310 or 3310.01 or 3310.02, or Grad standing.			
<b>5340</b>	<b>Evolution and Taxonomy of Vascular Plants</b>	<b>U G</b>	<b>4</b>
The course will focus on the diversity and evolution of extant and fossil vascular plants and the features and data that are used to understand their phylogenetic relationships. Prereq: Biology 1114, or permission of instructor.			



## Evolution, Ecology and Organismal Biology 207

**5350 Evolutionary Ecology** U G 3

This course explores the interactions among evolutionary and ecological patterns and processes, including evolutionary approaches to understanding life histories, reproductive and social behavior, host-pathogen, predator-prey and other interspecific interactions, evolutionary conservation biology and eco-evolutionary dynamics.  
Prereq: 3310.01, 3310.02, 3420, 3420H, or 3420E, or permission of instructor.

**5410 Aquatic Ecosystems - Ocean Ecology** U G 1½

Diversity and distribution of marine organisms; population dynamics, productivity, and structure of marine ecosystems; human impact on ocean resources.  
Prereq: 3410, or Grad standing. Not open to students with credit for 505.

**5420 Aquatic Ecosystems - Ecology of Inland Waters** U G 1½ - 4

A study of the physical, chemical, and biological factors influencing the biological productivity of inland waters, and of techniques and equipment used in evaluating them. Also available summer session at Stone Lab.  
Prereq: 3410, or Grad standing, or permission of instructor. Not open to students with credit for 647 and 655.

**5430 Fish Ecology** U G 3

Lecture emphasis on the behavior, migration, distribution, and evolution of fish; laboratory emphasis on ecological and systematic ichthyology. Lab fee required.  
Prereq: 3410, or Grad standing, or permission of instructor. Not open to students with credit for 621 and 626.

**5440 Plankton Ecology** U G 3

Material in this course focuses on the ecology of freshwater plankton (both phytoplankton and zooplankton) and the advanced study of lake ecology. The study of plankton ecology is central to understanding lake food web structure and production, which is important to fisheries, biogeochemistry, and freshwater responses to anthropogenic activities.  
Prereq: 5420

**5450 Population Ecology** U G 3

Quantitative study of the concepts, methods, and applications of population ecology.  
Prereq: 3410, or Grad standing. Not open to students with credit for 671.

**5460 Physiological Ecology** U G 3

Study of the physiological adjustment, tolerance, and acclimatization to the abiotic and biotic environment by animals and plants.  
Prereq: 3410, or Grad standing. Not open to students with credit for 654.01 and 674.

**5470 Community and Ecosystem Ecology** U G 3

A quantitative and descriptive approach to the establishment, development, succession, and dynamics of communities and their interrelations with historic, climatic, soil, and biotic factors.  
Prereq: 3410, or Grad standing. Not open to students with credit for 700 or 720.

**5480 Advanced Plant Ecology** U G 3

Plants are central to many of the ecological and evolutionary dynamics that drive variation in community structure and ecosystem functioning. In this course we will learn about and critically appraise major themes in plant ecology, covering key topics from ecophysiology, population biology, interspecific interactions, community ecology, and biogeography.  
Prereq: 3410.

**5490 Insect Behavior: Mechanisms and Function** U G 3

Understanding the mechanisms and evolution of insect behavior and communication. Course will address behavioral physiology and ecology, sociality, learning and cognition, as well as applied aspects of insect behavior.  
Prereq: Jr standing, or permission of instructor. Not open to students with credit for Entmlyg 5420 or 5490. Cross-listed in Entmlyg.

**5610S Translating Evolution** U G 3

Hands-on study of the theory and practice of informal science education, with an emphasis on the translation of concepts and research on evolutionary biology to non-specialist audiences.  
Prereq: 3310 or 3310.01 or 3310.02, or Biology 1114 or 1114H and 3 additional credit hours in Biological Sciences.

**5798 Tropical Behavioral Ecology and Evolution** U G 3

Focus on the evolutionary processes that shape the ecology and behavior of invertebrate systems in a diverse tropical forest with a special emphasis on symbioses. Students will build skills in proposal writing, experimental design, and field research conducted at the world renowned Smithsonian Tropical Research Institute in Panama.  
Prereq: 3193 (Adams) or 8896.02 (Adams). Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**5910 Evolution and Ecology of Reptiles and Amphibians** U G 2

Study of the evolution and ecology of reptiles and amphibians, with emphasis on the fauna of Ohio.  
Prereq: 12 sem cr hrs of Biological Sciences, and GPA 2.5 or above, and Jr standing or above, or permission of instructor. Not open to students with credit for 622.

**5911 Tropical Herpetology** U G 4

Field course on the study of reptiles and amphibians, with emphasis on tropical species identification, field techniques and methods, population ecology, and conservation strategies. Course will be conducted at a tropical field site such as the Biological Field Station El Zota, Tapézco, Costa Rica.  
Prereq: GPA of 2.5 or above, completion of 12 semester cr hrs of biological sciences, and Jr standing or above by autumn of enrollment; or permission of instructor.

**5930 Ichthyology (Stone Lab)** U G 3 - 4

Study of the distribution and classification of fishes, which includes methods of identification, collection, and preservation. Available summer session at Stone Lab.  
Prereq: GPA 2.5 or above, and Jr standing or above, and 12 sem cr hrs in Biological Sciences; or permission of instructor. Not open to students with credit for 621.

**5940 Field Zoology (Stone Lab)** U G 3 - 4

Field and laboratory identification of aquatic and terrestrial vertebrates and invertebrates of the region, in relation to habitats occupied. Available summer session at Stone Lab.  
Prereq: GPA 2.5 or above, and Jr standing or above, and 12 sem cr hrs in Biological Sciences; or permission of instructor. Not open to students with credit for 651.

**5970 Larval Fish Identification Workshop (Stone Lab)** U G ½

Workshop on the techniques involved with the collection and identification of common larval fishes of the Lake Erie drainage basin. 1-day course available summer session at Stone Lab.  
Prereq: 12 sem cr hrs of Biological Sciences, and GPA 2.5 or above, and Jr standing or above, or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**6193 Graduate Individual Studies** G 1 - 3

Individual work in the field of the chosen problem.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 8 completions. This course is graded S/U.

**6194 Graduate Group Studies** G 1 - 3

Group work in the field of the chosen problem.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions.

**6210 Ecotoxicology** G 2 - 4

Technical examination of the environmental fate and toxicity of organic xenobiotics, inorganics, and metals; emphasis on chemistry of interactions with physical environment, fugacity models, risk assessment, and predictive toxicology.  
Prereq: 3410, or Chem 2510 and 2520 or equiv, or Grad standing, or permission of instructor. Not open to students with credit for Entomol 762.

**6310 Molecular Evolution** G 3

The genetic basis of evolution and the molecular mechanisms of evolution.  
Prereq: 3310, 5310, MolGen 4500, 5606, or equiv. Not open to students with credit for 640 or MolGen 640.

**6330 Phylogenetic Methods** G 4

Methods for phylogenetic analysis: cladistics, maximum likelihood, Bayesian approaches; character coding and data management.  
Prereq: Permission of instructor. Not open to students with credit for 626.

**6620 Scientific Writing in Evolution & Ecology: Manuscripts** G 1½

This graduate-level course focuses on improving the scientific writing ability of students. This course will focus specifically on writing scientific manuscripts. During the course, students will learn how to approach the writing process, practice writing, and learn to effectively critique their own writing and that of others.  
This course is graded S/U.

**6630 Scientific Writing in Evolution & Ecology: Proposals** G 1½

This graduate-level course focuses on improving the scientific writing ability of students. This course will focus specifically on writing scientific proposals. During the course, students will learn how to approach the proposal writing process, practice writing, and learn to effectively critique their own writing and that of others.  
This course is graded S/U.

**6999 Research for Thesis** G 1 - 12

Research for masters thesis.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**7210 Molecular Methods in Evolution and Ecology** G 1

Hands-on course for learning the use of molecular markers in evolutionary and ecological studies.  
Prereq: 3310 or 3410, and 8 additional sem cr hrs of coursework in EEOB; or Grad standing. Not open to students with credit for 713.

**7220 Modeling in Evolutionary Ecology** G 4

Optimization models in evolutionary ecology, including dynamic optimization, evolutionary game theory, and adaptive dynamic models.  
Prereq: Permission of instructor. Not open to students with credit for 714.01 and 714.02.

**7890 Agricultural Acarology** G 4

An intensive review of mites associated with crops, ornamental plants, and stored food products with emphasis on taxonomy and ecology of these animals.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs.

**7891 Medical-Veterinary Acarology** G 4

The mites associated with humans, domestic animals, and wildlife, stressing their ecology and behavior in relation to transmission of viral, rickettsial, bacterial, and protozoan diseases.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs.

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<b>8194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group work in the field of a chosen problem. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions.			
<b>8894</b>	<b>EEOB Graduate Student Seminar</b>	<b>G</b>	<b>1 - 2</b>
Required of all graduate students in evolution, ecology, and organismal biology during first Autumn semester of registration. Repeatable to a maximum of 4 cr hrs or 2 completions. This course is graded S/U.			
<b>8896.01</b>	<b>EEOB Graduate Seminar: Anatomy and Physiology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in anatomy and physiology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.02</b>	<b>EEOB Graduate Seminar: Behavior</b>	<b>G</b>	<b>1 - 2</b>
Current topics in behavior as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.04</b>	<b>EEOB Graduate Seminar: Ecology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in general ecology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.05</b>	<b>EEOB Graduate Seminar: Evolution</b>	<b>G</b>	<b>1 - 2</b>
Current topics in evolution as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.06</b>	<b>EEOB Graduate Seminar: Marine Biology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in marine biology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.07</b>	<b>EEOB Graduate Seminar: Wildlife Biology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in wildlife biology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.08</b>	<b>EEOB Graduate Seminar: Fisheries Biology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in fisheries biology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.09</b>	<b>EEOB Graduate Seminar: Ecotoxicology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in ecotoxicology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.10</b>	<b>EEOB Graduate Seminar: Systematics</b>	<b>G</b>	<b>1 - 2</b>
Current topics in systematics as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.11</b>	<b>EEOB Graduate Seminar: Population Ecology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in population ecology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.12</b>	<b>EEOB Graduate Seminar: Molecular Ecology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in molecular ecology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.13</b>	<b>EEOB Graduate Seminar: Physiological ecology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in physiological ecology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.14</b>	<b>EEOB Graduate Seminar: Aquatic Ecology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in aquatic ecology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.15</b>	<b>EEOB Graduate Seminar: Population Genetics</b>	<b>G</b>	<b>1 - 2</b>
Current topics in population genetics as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.17</b>	<b>EEOB Graduate Seminar: Invertebrate Zoology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in invertebrate zoology as related to evolution, ecology, and organismal biology that vary with the interests of the students and instructor. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			

<b>8896.18</b>	<b>EEOB Grad Seminar: Behavioral Ecology</b>	<b>G</b>	<b>1 - 2</b>
Current topics in behavioral ecology as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.19</b>	<b>EEOB Grad Seminar: Current Topics in Quantitative Methods</b>	<b>G</b>	<b>1 - 2</b>
Current topics in quantitative methods as related to evolution, ecology, and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8896.20</b>	<b>Women in Science</b>	<b>G</b>	<b>1</b>
In this seminar course, participants will read key papers concerning the status of women in the STEM disciplines (Science, technology, engineering, and mathematics). Prereq: Grad standing, or permission of instructor. This course is graded S/U. Cross-listed in WGSS.			
<b>8896.21</b>	<b>EEOB Graduate Seminar: Diversity, Equity and Inclusion in Science</b>	<b>G</b>	<b>1 - 2</b>
Current topics in diversity, equity and inclusion in science, with a focus on evolution, ecology and organismal biology. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>8998</b>	<b>Graduate Research</b>	<b>G</b>	<b>1 - 12</b>
Graduate research. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 65 cr hrs or 18 completions. This course is graded S/U.			
<b>8999</b>	<b>Research for Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 27 cr hrs or 12 completions. This course is graded S/U.			

### Exploration

<b>1100.01</b>	<b>University Exploration Survey</b>	<b>U</b>	<b>1</b>
Introduction to the process of decision making and exploring majors at Ohio State; introduction to university community; strategies for successful transition to and participation in that community; university resources and procedures. Prereq: Fresh standing in Exp, and permission of instructor. Not open to students with credit for 100.01, 100.01H, 100.02, or 100.03.			
<b>1100.01E</b>	<b>University Exploration Honors Survey</b>	<b>U</b>	<b>1</b>
Introduction to the process of decision making and exploring majors at Ohio State; introduction to university community; strategies for successful transition to and participation in that community; university resources and procedures. Prereq: Fresh standing in Exp, and permission of instructor. Not open to students with credit for 100.01, 100.01H, 100.02, or 100.03.			
<b>1100.01H</b>	<b>Exploration Survey</b>	<b>U</b>	<b>1</b>
University survey class for new freshmen honors students. Prereq: First year student in Exp or permission of instructor. Not open to students with credit for 100.01, 100.01H, 100.02 or 100.03.			
<b>1100.02</b>	<b>University Exploration Survey</b>	<b>U</b>	<b>1</b>
Introduction to the processes of decision making and exploring majors at Ohio State; introduction to the university community; strategies for success transition to and participation in that community; university resources and procedures. Prereq: Transfer student in EXP, and permission of instructor. Not open to students with credit for a university survey course from another college or with credit for: 1100.01 (100.01), 1100.01H (100.01H), 100.02, 100.03, USAS 100, 100.11, or 100.21.			
<b>1500</b>	<b>Student Tech for Academic Success</b>	<b>U</b>	<b>3</b>
This course is designed to help students with the transition from high school to college level academics by improving study skills, regulating academic behaviors and continuing personal development. This course is designed to promote your self-awareness. This hands-on, active-learning course will also teach students how to engage with mobile technology for academic advancement and organization. Prereq: Permission of instructor.			
<b>2000</b>	<b>Major Exploration for Continuing Students</b>	<b>U</b>	<b>1</b>
The How to Re-decide course is a seven week, one credit hour course which meets once a week with one additional hour of online material per week. The course guides students through the re-deciding process and formulating a new academic plan at OSU by exploring potential majors through assessments, exposure to OSU degrees and various ways to explore and determine the best fit. Prereq: Not open to students with credit for 1100.01 or 1100.02.			
<b>2100</b>	<b>Spring Forward Summer Experience: Strategies for Academic and Personal Success</b>	<b>U</b>	<b>1</b>

EXP 2100 provides opportunities to strengthen academic resiliency, by focusing on skills and strategies in and out of the classroom that impact a student's academic success. Students work to better understand themselves and their goals and strengthen their connections to Ohio State and its resources. This course builds on prior strategies covered in learning strategies courses.

## Film Studies

<b>2271</b>	<b>Introduction to Film Studies for Majors</b>	<b>U</b>	<b>3</b>
An introduction to the field of Film Studies based on a survey of the major theories of film analysis, specifically geared for incoming majors. Prereq: English 2263 (263), or HistArt 2901 (260). Not open to students with credit for 2270 (270). GE VPA course.			
<b>2367.01</b>	<b>The American Film Auteur</b>	<b>U</b>	<b>3</b>
An intermediate course centering around the work of one important US filmmaker that extends and refines expository writing and analytic reading / viewing skills. Prereq: English 1110 (110) and Soph standing, or enrollment in Film Studies major. Repeatable to a maximum of 6 cr hrs. GE writing and comm course: level 2.			
<b>2367.02</b>	<b>The American Film Genre</b>	<b>U</b>	<b>3</b>
An intermediate course centering around the works of one important US film genre that extends and refines expository writing and analytic reading / viewing skills. Prereq: English 1110 (110) and Soph standing, or enrollment in Film Studies major. Repeatable to a maximum of 6 cr hrs. GE writing and comm course: level 2.			
<b>3660</b>	<b>Documentary Film Studies</b>	<b>U</b>	<b>3</b>
An upper-level course in documentary geared toward film studies majors. Prereq: 2270 or 2271, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>4191</b>	<b>Film Studies Internship / Field Practicum</b>	<b>U</b>	<b>1 - 2</b>
An opportunity for work experience and on-the-job learning in film studies or film production related employment. Prereq: Permission of program director, and enrollment in Film Studies major. Repeatable to a maximum of 6 cr hrs or 5 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group studies for work in various fields of film studies not normally offered in courses. Repeatable to a maximum of 6 cr hrs or 3 completions.			
<b>4640</b>	<b>Studies in Cinema History</b>	<b>U</b>	<b>3</b>
An upper-level course on aspects of film history geared toward film studies majors. Prereq: 2270 or 2271, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>4650</b>	<b>Studies in Regional Cinema</b>	<b>U</b>	<b>3</b>
An upper-level course on topics in a (sub-)national, geographic, or cultural region's cinema conducted in English and geared toward film studies majors. Prereq: 2270 or 2271; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>4800</b>	<b>Story Development for Film and Television</b>	<b>U</b>	<b>3</b>
In this course, students will harness their pre-existing critical thinking skills and historical knowledge to develop a personal statement-of-purpose that enables them to generate and refine their own original film and television concepts for subsequent production projects. Prereq: Permission of instructor. Not available for students with credit for FilmStd 4194 AU 14 or English 4800. Cross-listed in English.			
<b>4880</b>	<b>Screenwriting and the Business of Cinema</b>	<b>U</b>	<b>3</b>
This course examines screenwriting as both a literary art form and a challenging profession. Prereq: Theatre 5331 (636), or permission of instructor. Not open to credit to students with credit for 680.			
<b>4881</b>	<b>Screenwriting and the Business of Television</b>	<b>U</b>	<b>3</b>
This course examines television writing from both a creative and business perspective. Each student will individually pitch, and then write the show's bible, outline, and pilot. Students learn about teleplay structure, as well as ways to develop intriguing characters, realistic dialogue, and engaging episodes. In small groups students develop, write, and read others' work collectively. Prereq: Theatre 5331 or permission of instructor. Not available to students with credit for 5194 Sp15.			
<b>4890</b>	<b>Advanced Screenwriting</b>	<b>U</b>	<b>3</b>
An intensive writing course in which each student completes a feature-length screenplay based on work previously completed in Film Studies 680 or Film Studies 4880. Prereq: 4880 (680), and permission of director. Not open to students with credit for 690.			
<b>4895</b>	<b>Advanced Seminar: Topics in Film Studies</b>	<b>U</b>	<b>3</b>
Selected problems (themes, movements, theories, genres, styles, etc.) in film studies; topics vary per semester. Prereq: Enrollment in FilmStd major, and Sr standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research or creative activities in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Distinction Project</b>	<b>U</b>	<b>2 - 12</b>
Completion of a distinction project developed in consultation with advisor. Prereq: Sr Standing, and permission of instructor. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis</b>	<b>U</b>	<b>2 - 12</b>
Completion of an honors thesis. Should be scheduled in consultation with advisor. Topics vary. Prereq: Honors, Sr standing, and permission of instructor. This course is graded S/U.			

<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Students may register for individual directed study under this number for work in various fields of film studies not normally offered in courses. Prereq: Permission of program director. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5600</b>	<b>Pathways in Film Practice and Theory</b>	<b>U G</b>	<b>3</b>
Explorations of the rich interconnections between the understanding and the production of moving-image works. Students will be introduced to alternative modes of the moving image in the context of other modes of artistic expression and critical thought, with the aim of increasing intellectual breadth and production skills. Prereq: 2271, or Grad standing; or permission of program. Repeatable to a maximum of 6 cr hrs.			
<b>7000</b>	<b>Graduate Studies in Film History</b>	<b>G</b>	<b>3</b>
Study of the social, industrial, technological, and intellectual history of cinema, including cinema's relationships to modernity and its transnational developments. Prereq: Grad standing, or permission of instructor.			
<b>7001</b>	<b>Advanced Theory Seminar: Methods and Applications</b>	<b>G</b>	<b>3</b>
A theory and methods seminar which focuses on one scholarly approach to cinema (auteurism, formalism, historicism, feminism, etc). Repeatable to a maximum of 9 cr hrs.			
<b>7191</b>	<b>Graduate Internship</b>	<b>G</b>	<b>1 - 3</b>
An opportunity for work experience and on-the-job learning in film studies or film production related employment. Prereq: Permission of director of graduate studies or program director. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>7193</b>	<b>Graduate Independent Study</b>	<b>G</b>	<b>1 - 3</b>
Graduate independent study. Students may register to pursue study in various fields of film studies not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7999</b>	<b>MA Thesis Research</b>	<b>G</b>	<b>1 - 3</b>
Research for M.A. Thesis. Prereq: Permission of instructor and director of graduate studies or program director. Repeatable to a maximum of 12 cr hrs or 4 completions.			

## Food Science and Technology

<b>1100</b>	<b>Exploring Food Science and Technology</b>	<b>U</b>	<b>½</b>
Basic understanding of the global trends within food science and technology, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.			
<b>1110</b>	<b>Chocolate Science</b>	<b>U</b>	<b>1</b>
Introduction to science and business of chocolate. Students develop and market a chocolate product as part of a virtual company. Students taste commercial products. Prereq: Not open to students with credit for 101.			
<b>1120</b>	<b>Wine and Beer in Western Culture</b>	<b>U</b>	<b>2</b>
The role of wine and beer in western culture with emphasis on the geographic origins, production techniques, and stylistic considerations. Prereq: Not open to students with credit for 170.			
<b>1140</b>	<b>Kitchen Science</b>	<b>U</b>	<b>2</b>
Students will be introduced to sanitation rules, basic culinary/baking methods, fundamentals of cooking & the science behind its methodology. Students will also gain an understanding of common foods & their function in cooking. Class will provide demonstration & explanation of a number of cooking techniques & methodology of each formulation will be explained on a scientific basis. Prereq: Chem 1110 or Biology 1101, or equiv.			
<b>1150</b>	<b>Caffeine Science</b>	<b>U</b>	<b>1</b>
Explore the science of caffeine and production of caffeinated products, how it affects the human body along with a study of the historical importance of some of today's most popular caffeine sources.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual study course to permit undergraduate students to explore in-depth selected areas of food science and nutrition. Prereq: GPA 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is progress graded (S/U).			
<b>2200</b>	<b>The Science of Food</b>	<b>U</b>	<b>3</b>
Food and nutrition in modern health; principles involved in digestion, metabolism and contribution of food to diseases processes, including food poisoning and the role of science, biotechnology and processing in meeting health and food needs. Prereq: Biology 1101 (101) or 1113 (113). Not open to students with credit for 201. GE nat sci bio course.			

## 210 Food Science and Technology

<b>2400</b>	<b>Introduction to Food Processing</b>	<b>U</b>	<b>3</b>
Introductory class applying chemistry, biology, and engineering to hands-on experience on the production and evaluation of foods. Includes basic food regulations, sanitation and formulation. Prereq: Biology 1101 (101) or 1113 (113), and Chem 1110 (101) or 1210 (121). Not open to students with credit for 401.			
<b>2410</b>	<b>Brewing Science</b>	<b>U</b>	<b>2</b>
Science and practices of beer production including hop and barley cultivation, the science of malting and fermentation, flavor development and beer processing. Prereq: Biology 1101 (101) or 1113 (113), and Chem 1110 (101) or 1210 (121). Not open to students with credit for 411.			
<b>3400</b>	<b>Food Supply-Chain Equipment Operations</b>	<b>U</b>	<b>2</b>
The focus of this course is description of equipment used throughout the food supply chain from harvest/assembly to preparation for consumption. After completing this course, students will recognize how equipment systems are assembled within a facility and the role of sensing and control systems in operation of facilities for handling, manufacturing, storage, distribution and preparation of foods. Cross-listed in AgSysMt.			
<b>4191</b>	<b>Internship</b>	<b>U</b>	<b>1</b>
Twelve weeks of structured in-depth industrial experience in selected food related subjects. Experience must be obtained with an organization approved by the department. Prereq: 12 cr hrs at the 5000-level or above in major field, and enrollment in FdScTe, and permission of instructor. Not open to students with credit for 589. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual study course to permit undergraduate students to explore in-depth selected areas of food science and nutrition. Prereq: Permission of instructor. Not open to students with credit for 493. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is progress graded (S/U).			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group studies on selected topics in food science and nutrition. Prereq: Permission of instructor. Not open to students with credit for 494.			
<b>4410</b>	<b>Hazard Analysis and Critical Control Points (HACCP)</b>	<b>U</b>	<b>2</b>
Teaches the basics of HACCP. Upon completion of the course, students will understand the relationship of GMPs (Good Manufacturing Practices), SSOPs (Sanitation Standard Operating Procedures), pre-HACCP steps and the Seven Principles of HACCP. The students will select a food processing operation and develop a HACCP plan. Prereq: 2400.			
<b>4536</b>	<b>Food Safety and Public Health</b>	<b>U</b>	<b>2</b>
Principles and practice of food safety; transmission, inactivation and control of foodborne pathogens, hazards, toxins and allergens; risk assessment, sanitation, and pest control in foods. Prereq: Micrbio 4000 (Micrbio 509). Not open to students with credit for 536 or PubHEHS 4530 (530). Cross-listed in PubHEHS 4530.			
<b>4597.01</b>	<b>Alcohol and Society</b>	<b>U</b>	<b>3</b>
The historical, nutritional, medical, social, technical, and economic aspects of the use of beverage and industrial alcohol. Prereq: Jr standing. Not open to students with credit for 597.01. GE cross-disciplinary seminar course.			
<b>4597.02</b>	<b>Food and Health Controversies in the 21st Century</b>	<b>U</b>	<b>3</b>
Students will investigate such topics as food labeling and processing, including the natural and organic labels and science behind biotech foods. Other topics of discussion include diets and obesity in developed countries, relevant food ingredients such as sweeteners and caffeine and a global look at food aid and trade of agricultural goods. GE cross-disciplinary seminar course.			
<b>4600</b>	<b>Food Composition and Function</b>	<b>U</b>	<b>2</b>
The purpose of this course will be to provide students a comprehensive introduction to the diverse and modern topics in Food Composition and Function. At the end of the course, students should have clear understanding of the macro-components of foods, understand basic food chemistry principles, and understand the composition-function relationship in foods. Prereq: Biology 1101 or 1113, and Chem 1110 or 1210.			
<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>1 - 5</b>
Conducting and reporting research with Distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum. Prereq: CPHR 3.0 or above, and GPA 3.0 or above in FdScTe, and permission of project supervisor. Not open to students with credit for 683H. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is progress graded (S/U).			
<b>4999H</b>	<b>Honors Research with Distinction</b>	<b>U</b>	<b>1 - 3</b>
Conducting and reporting research with Distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum. Prereq: Honors standing, and FAES 4590.01H (590H), and CPHR 3.4 or above, and GPA 3.4 or above in FdScTe, and permission of honors project supervisor. Not open to students with credit for 683H. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			

<b>5310</b>	<b>Food Quality Assurance</b>	<b>U G</b>	<b>3</b>
Provides students with a knowledge of quality assurance concepts and procedures and tools for establishing quality control programs to produce high quality safe foods. Prereq: 2400 and Stat 1430 or 1450 or equiv., or Grad standing.			
<b>5320</b>	<b>Food Laws and Regulations</b>	<b>U G</b>	<b>2</b>
Major food laws/regulations, food regulatory agencies, good manufacturing practices, HACCP, ingredients, labeling regulations, adulteration and misbranding, compliance/investigations/enforcements, crisis management, recall, Ohio State food laws. Prereq: 2400 (401), or Grad standing, or permission of instructor. Not open to students with credit for 640.			
<b>5330</b>	<b>Food Plant Management</b>	<b>U G</b>	<b>2</b>
Covers the essentials of food plant operations from a business and management, rather than a scientific or technical, perspective. Prereq: 2400 and Stat 1350 or equivalent, or Grad standing. Not open to students with credit for 648.			
<b>5400</b>	<b>Unit Operations in Food Processing</b>	<b>U G</b>	<b>3</b>
Study of unit operations in preserving foods by thermal and alternative food processing methods through problem solving and experimentation. Interdependence of food engineering, chemistry, and microbiology principles in food preservation. Prereq: 2400, FABEng 3481 (481), and Micrbio 4000 (Micrbio 509), or permission of instructor. Not open to students with credit for 630 or FABEng 4410 (584). Cross-listed in FABEng 4410.			
<b>5410</b>	<b>Fruit and Vegetable Processing</b>	<b>U G</b>	<b>3</b>
Composition of fruits and vegetables, how this affects quality during processing, principles, equipment and quality changes during common processing methods, including juicing, drying, freezing, canning, and jelly manufacture. Prereq: 2400, or Grad standing. Not open to students with credit for 613.			
<b>5420</b>	<b>Dairy Processing</b>	<b>U G</b>	<b>3</b>
Principles involved in the production, processing and safety of high quality milk and milk products. Prereq: 2400 (401) and Micrbio 4000 (509). Not open to students with credit for 610.			
<b>5430</b>	<b>Food Fermentations</b>	<b>U G</b>	<b>3</b>
Making fermented foods (dairy, alcoholic, meat, vegetable products, etc.) and understanding the microbiological and biochemical changes involved. Prereq: Micrbio 4000. Not open to students with credit for 611.			
<b>5450</b>	<b>Food Packaging</b>	<b>U G</b>	<b>3</b>
A discussion of terminology and literature of commercial packaging, principal methods of packaging, and principles of selecting packaging materials. Prereq: 2400 (401), or Grad standing. Not open to students with credit for 649.			
<b>5500</b>	<b>Measurement of Food Perception and Liking</b>	<b>U G</b>	<b>3</b>
Explores the principles and procedures for accurately assessing the sensory and hedonic properties of foods and consumer products. Appropriate test design, statistical analyses and data interpretation will be discussed and the physiological and psychological principles impacting sensory judgments will be explored. A proficiency in basic statistics and Excel is required. Prereq: ComLdr 3537, AEDEcon 2005, AnimSci 2260, HCS 2260, ENR 2000, or Stat 1450.			
<b>5536</b>	<b>Food Microbiology Lecture</b>	<b>U G</b>	<b>3</b>
Microbiology as applied to food. Students learn about microorganisms that spoil food or cause food-transmitted diseases, as well as beneficial microorganisms. Control of harmful microorganisms in food is discussed. Prereq: Micrbio 4000 (Micrbio 509) or 4100 (520), or Grad standing. Not open to students with credit for 636.01 or Micrbio 5536 (Micrbio 636.01). Cross-listed in Micrbio.			
<b>5546</b>	<b>Food Microbiology Laboratory</b>	<b>U G</b>	<b>3</b>
Microbiological analyses as applied to food. Students learn how to detect and quantify microorganisms that spoil food or cause food-transmitted diseases, as well as beneficial microorganisms. Prereq: 5536 (636.01) or Micrbio 5536, or Grad standing. Not open to students with credit for 636.02 or Micrbio 5546 (636.02). Cross-listed in Micrbio.			
<b>5600</b>	<b>Food Chemistry</b>	<b>U G</b>	<b>3</b>
Describe the sources and compositions of food components. Develop a relationship between the composition of the individual food components and their chemical and physical properties. Understanding the chemistry of food components during processing and storage. Prereq: 2400 and Chem 2510, or Grad standing. Prereq or concur: Biochem 4511.			
<b>5610</b>	<b>Food Analysis</b>	<b>U G</b>	<b>3</b>
Chemical, physical and functional properties of foods and effects of processing on those constituents using an array of chemical, biochemical and instrumental technologies in accordance with current food industry and regulatory agency practices. Prereq: 5600 (605), or Grad standing. Not open to students with credit for 601.			
<b>5710</b>	<b>Food Additives</b>	<b>U G</b>	<b>2</b>
Chemical and physical nature of food additives; functions and effects on chemical, rheological, microbiological, and nutritional properties of foods. Prereq: 10 cr hrs in FdScTe, or Grad standing. Not open to students with credit for 621.			

## Food Science and Technology 211

<b>5720</b>	<b>Food Product Development</b>	<b>U G</b>	<b>3</b>
Development of a new food product including generation of concepts, consumer panel testing, development of prototypes, process optimization and consumer testing. Prereq: 2400, and Sr standing, or Grad standing. Not open to students with credit for 650.			
<b>5721</b>	<b>Applied Food Product Development</b>	<b>U G</b>	<b>1</b>
A problem-based interdisciplinary capstone learning experience designed to enhance career skills (critical thinking, decision making, team work, communication, etc.) in the context of industry's approach to developing new and improved food products. Prereq: 5720. Not open to students with credit for 650.			
<b>5730</b>	<b>Technical Problem Solving</b>	<b>U G</b>	<b>3</b>
Analysis of technical problems in food science; fostering creative thinking to the approach and solution of problems; preparation and oral presentation of paper. Prereq: 5600 or 5710, and 5536 or 4536, and 5400, 5410, 5420, 5430, 5450, or MeatSci 4510, and Sr standing; or Grad standing.			
<b>5797.01</b>	<b>Food Science and Policy in Italy</b>	<b>U G</b>	<b>3</b>
This 3 credit, 3 week education abroad course will integrate knowledge gained in the required course PubAfrs 5890 with real-world experience to enhance the students' understanding of food science and policy in Italy. Tours will include food production and processing facilities, wineries, traditional meat processors, various retail formats, restaurants and cultural venues. Prereq: PubAfrs 5890.			
<b>6320</b>	<b>Global Health and Environmental Microbiology</b>	<b>G</b>	<b>3</b>
Fundamentals and emerging issues of health significant microorganisms (bacteria, viruses, protozoa) from water, air, soil and food, and their sources, transmission routes, treatments, detection methods and study tools. Prereq: Not open to students with credit for PubHEHS 730. Cross-listed in PubHEHS.			
<b>6400</b>	<b>Study Design and Quantitative Methods for Food Science</b>	<b>G</b>	<b>3</b>
This graduate-level course is designed to introduce students to research study design and data analytic methods commonly used in food science. Since study planning is critical to the success of any research project, this course will focus primarily on appropriate study design. Prereq: Stat 1450, 1550, or 2450; or permission of instructor.			
<b>7193</b>	<b>Individual Study</b>	<b>G</b>	<b>1 - 3</b>
Individual study course to permit graduate students to explore in-depth selected areas of food science and nutrition. Prereq: Permission of instructor. Not open to students with credit for 693. Repeatable to a maximum of 6 or hrs or 2 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Selected topics in food science. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions.			
<b>7360</b>	<b>Water Contamination: Sources and Health Impact</b>	<b>G</b>	<b>3</b>
Understanding the sources, the transport mechanisms and the fate of microbial and chemical contaminants, their exposure risks, tracking methods, linking to other environmental matrices and their public health impacts. Cross-listed in PubHlth 7360.			
<b>7430</b>	<b>Advanced Food Process Design</b>	<b>G</b>	<b>3</b>
An integration of quantitative parameters describing changes in the quality attributes of foods with quantification of the physical changes occurring between the time of raw material harvest or assembly and the point of food consumption. Models to predict changes in quality attributes as a function of process parameters will be developed and demonstrated. Prereq: 5400, 5536, 5600, or FABEng 3481 or 4410, or permission of instructor. Not open to students with credit for FABEng 7430. Cross-listed in FABEng.			
<b>7550</b>	<b>Advanced Concepts in Sensory Science</b>	<b>G</b>	<b>2</b>
This course explores advanced concepts in Sensory Science including flavor perception, food intake and sophisticated methodological and data analysis procedures. The structure of this course will involve open discussion of important concepts obtained from seminal readings. Prereq: 5500, or Stat 5000 or above.			
<b>7600</b>	<b>Metabolomics, Principles and Practice</b>	<b>G</b>	<b>3</b>
Introduces students to the principles and practice of metabolomics. Metabolomics is the study of the totality of small molecules existing within a system. We will focus here on the application of metabolomics to plant, food, nutrition and health-related research, although concepts are applicable to other disciplines. Prereq: Permission of instructor. Cross-listed in BMI, HCS, and HumnNtr.			
<b>7610</b>	<b>Instrumental Analysis I: Spectroscopic and Chromatographic Techniques in Food Analysis</b>	<b>G</b>	<b>3</b>
Theory and practice of analytical chemistry applied to the identification and quantitation of analytes in food. Emphasis on chromatography, optical spectroscopy, mass spectrometry as well as sample preparation techniques and statistical data treatment. Prereq: 5610 (601) or equiv.			
<b>7611</b>	<b>Instrumental Analysis II Molecular and Spectral Analysis Techniques</b>	<b>G</b>	<b>3</b>
Methods of analysis of foods including thermal analysis, NMR, microscopy and rheology. Prereq: Chem 2520 (252), or 2310 and 2540, or Biochem 4511 (511), or Grad standing, or permission of instructor. Not open to students with credit for 833.			

<b>7620</b>	<b>Food and Nutritional Toxicology</b>	<b>G</b>	<b>2</b>
Basic principles of food and nutritional toxicology with emphasis on food components and food toxins including absorption, metabolism and excretion of xenobiotics, allergenic and toxic constituents, role of diet and nutrients in mutagenesis and carcinogenesis. Prereq: Biochem 4511 or 5613. Not open to students with credit for 830, AnimSci 830, or HumnNtr 830.			
<b>7630</b>	<b>Food Colors and Pigments</b>	<b>G</b>	<b>3</b>
Chemistry and reactivity of pigments and colors in foods. Prereq: 5600 (605), 5610, or Grad standing, or permission of instructor. Not open to students with credit for 724.			
<b>7640</b>	<b>Food Proteins</b>	<b>G</b>	<b>2</b>
Chemical, physical, biological, and functional properties of food proteins and their interactions with other food components. Prereq: 2400 or equiv., 5600 or equiv., or permission of instructor.			
<b>7641</b>	<b>Food Carbohydrates</b>	<b>G</b>	<b>2</b>
Chemical, physical, biological, and functional properties of food carbohydrates and their interactions with other food components. Prereq: 2400 or equiv., 5600 or equiv., or permission of instructor.			
<b>7650</b>	<b>Food Lipids</b>	<b>G</b>	<b>2</b>
Provide the students with an understanding of the chemistry and physical properties of lipids and their effects on quality and functional properties of food systems. Prereq: Not open to students with credit for 820 and 821.			
<b>7660</b>	<b>Principles of Crystallization Processes in Food Systems</b>	<b>G</b>	<b>2</b>
Discusses the principles of crystallization in food systems, particularly in dairy, frozen foods, confectionery, and baked products. This course would emphasize the importance of controlling the crystallization as a key factor in food quality, when some foods require the promotion of crystallization and others its prevention.			
<b>7670</b>	<b>Flavor Chemistry</b>	<b>G</b>	<b>2</b>
This course will provide students with an understanding of the chemical stimuli that impact flavor perception, analytical approaches to characterize flavor stimuli, mechanisms of flavor formation, flavor-ingredient interactions, and industrial methods of flavor production.			
<b>7727</b>	<b>Interdisciplinary Colloquium in Food Safety</b>	<b>G</b>	<b>1</b>
Weekly graduate seminar on current and emerging topics in food safety. Presentations from OSU faculty and invited external experts from industry, academia and government. The course is designed to expose graduate students to the wide range of topics and expertise needed to address food safety. Students will learn the role of the public sector in ensuring food safety. Prereq: Grad standing. Repeatable to a maximum of 4 or hrs. This course is graded S/U. Cross-listed in VetPrev.			
<b>7830</b>	<b>Phytochemicals in Human Health: Crops to the Clinic</b>	<b>G</b>	<b>3</b>
Covers the function and control of phytochemicals in plants, the function of phytochemicals in human health, delivery of phytochemicals through foods in the diet, strategies when designing studies examining foods for health, and policy and sustainability considerations. Prereq: Biochem 4511 (511) or 5613 (613), or equiv; or permission of instructor. Not open to students with credit for 7810. Cross-listed in HCS, HumnNtr, BSGP, and PubHEpi.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis purpose only. Repeatable. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Research experience and preparation of technical paper. Prereq: 10 or hrs in Grad level FdScTe. Repeatable to a maximum of 15 or hrs or 4 completions. This course is progress graded (S/U).			
<b>8991</b>	<b>Graduate Seminar</b>	<b>G</b>	<b>1</b>
Discussion of current topics and research findings in food science. Prereq: Grad standing. Not open to students with credit for 850.01. Repeatable to a maximum of 5 or hrs.			
<b>8992</b>	<b>Graduate Seminar in Food Science and Technology</b>	<b>G</b>	<b>1</b>
A weekly seminar series on current and emerging topics in Food Science and Technology. Graduate students participate in all dimensions of the course, including presentations, as well as through interactions with all other speakers. Seminar speakers will include graduate students, as well as faculty and invited representatives from industry, academia and government. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 3 or hrs.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 16</b>
Research for thesis or dissertation. Repeatable. This course is graded S/U.			

## Food, Agricultural, and Biological Engineering

<b>2100</b>	<b>Energy In Biological Systems</b>	<b>U</b>	<b>1</b>
An introduction to energy flow and transformations within and for biological systems that include the human environment and the production and processing of plants, animals and micro-organisms the student will encounter in the food, agricultural and biological engineering program. Prereq: Soph standing in Engineering. Not open to students with credit for 325.			

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<b>2110</b>	<b>Fluid Mechanics in Food, Agricultural and Biological Systems</b>	<b>U</b>	<b>3</b>
Fluid statics. Introduction to momentum transfer. Equation of continuity. Equation of motion. Navier-Stokes equations. Compressible flow. Applications in fluid transport and mixing. Dimensional analysis. Prereq: Physics 1250 (131), and prereq or concur: Math 2177. Not open to students with credit for 325 and CivilEn 413, or ChBE 420.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individualized study of topics and problems not included in regular courses of this department. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 4 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Basic group studies in Food, Agricultural and Biological Engineering. Prereq: Will be specified with course proposal. Repeatable to a maximum of 10 cr hrs or 4 completions.			
<b>2200</b>	<b>Introduction to Humanitarian Engineering</b>	<b>U</b>	<b>1</b>
This course will introduce students to the field of Humanitarian Engineering, cover a variety of potential career paths in this field, explore introductory engineering equations as they apply to problem solving in low-resource settings, introduce students to reflection and communication skills for working as engineers in development and discuss cultural constraints for engineering problems.			
<b>2201</b>	<b>Introduction to Humanitarian Engineering Laboratory</b>	<b>U</b>	<b>2</b>
This course will introduce students to the field of Humanitarian Engineering through experience based learning. Weekly experiential activities will build context for engineering design in low resource and international settings as humanitarian development workers. Students will learn about lifestyles, challenges and physical limits in human existence to better inform engineering design decisions. Prereq or concur: 2200.			
<b>2710</b>	<b>Surveying</b>	<b>U</b>	<b>2</b>
Introductory course designed to teach the measurement and collection of data using traditional methods, total stations and GPS. These techniques will be integrated and applied to traversing, topographic mapping and water flow analysis. Prereq: Soph standing in Engineering. Not open to students with credit for 373.			
<b>2720</b>	<b>Principles of Soil and Water Engineering</b>	<b>U</b>	<b>2</b>
Applications of soil and water processes in agricultural and ecological engineering, including: precipitation, infiltration, runoff, hydrographs, water quality, and geospatial analysis of natural resource problems.			
<b>3120</b>	<b>Thermodynamics in Food, Agricultural and Biological Engineering</b>	<b>U</b>	<b>4</b>
Fundamentals of thermodynamics applied to food, agricultural, biological, and ecological systems. Prereq or concur: Math 2177, 2255, 2415 or 2174. Not open to students with credit for ChBE 508 and 509, or MechEng 501. This course is available for EM credit.			
<b>3130</b>	<b>Heat and Mass Transfer in Food, Agricultural and Biological Engineering</b>	<b>U</b>	<b>4</b>
Heat and mass transfer principles and applications to food, agricultural, biological and ecological systems. Prereq: 2110, or 2120, or 3120.			
<b>3140</b>	<b>Professional Development in Food, Agricultural, and Biological Engineering</b>	<b>U</b>	<b>1</b>
Professional development related to food, agricultural, biological and ecological engineering; business communication skills for professional advancement; engineering ethics; health and safety; and the engineer's responsibilities to society. Prereq: 3rd year standing in Food, Agricultural and Biological Engineering. Not open to students with credit for 695.			
<b>3150</b>	<b>System Dynamics and Electricity</b>	<b>U</b>	<b>4</b>
Modeling of mechanical, fluid, thermal, electrical, and bio-systems. Analytical, computer simulation and experimental solution methods. 1st and 2nd order systems, frequency response. Electric power distribution, electric motor selection and control. Prereq: Physics 1251 (132), and Math 2174 (415), 2177 (415), 2415 (415), or 2255 (255). Not open to students with credit for 425.			
<b>3170</b>	<b>Computer Graphics Using SolidWorks</b>	<b>U</b>	<b>2</b>
An advanced course in graphics with emphasis on the application of computer generated graphics with SolidWorks in the solution of engineering problems. Prereq: Engr 1182.01 or 1182.02 or 1182.03 or 1186.01 or 1282.01H or 1282.02H or 1282.03H or 1282.04H.			
<b>3171</b>	<b>Computer Graphics Using AutoCAD</b>	<b>U</b>	<b>2</b>
An advanced course in graphics with emphasis on the application of computer generated graphics to the solution of engineering problems using AutoCAD. Prereq: Engr 1182.01 or Engr 1182.02 or Engr 1182.03 or Engr 1186.01 or Engr 1282.01H or Engr 1282.02H or Engr 1282.03H or Engr 1282.04H.			

<b>3200S</b>	<b>Engineering for Community Development in Ohio</b>	<b>U</b>	<b>3</b>
Service-learning course applying engineering to address contemporary issues related to food security in Central Ohio. In consultation with local social organizations, students will merge best practices for community development with resilient and sustainable design toward a semester long engineering design project that addresses a need or an opportunity to alleviate poverty and hunger. Prereq: Engr 1181.01, 1181.02, 1186.01, 1187, 1188, 1281.01H, 1281.02H, or 1281.03H, or permission of instructor.			
<b>3481</b>	<b>Introduction to Food Engineering</b>	<b>U</b>	<b>3</b>
Introduction to material and energy balances, momentum, heat and mass transfer. Applications of basic engineering principles in food processing through problem solving and laboratory experiments. Offered for Food Science & Technology. Prereq: Math 1151 (151), Physics 1106 (106), 1200 (111), Chem 1210 (121), or FdScTe 2400 (401); or permission of instructor. Not open to students with credit for 481. Not open to Engineering majors.			
<b>3500</b>	<b>Biological Engineering</b>	<b>U</b>	<b>3</b>
An Integration of biology, biochemistry and engineering fundamentals for analysis of biological systems in industrial, environmental, and agricultural processes. Prereq: 2110. Prereq or concur: Microbio 4000.			
<b>3510</b>	<b>Introduction to Biological Engineering</b>	<b>U</b>	<b>4</b>
An integration of biology, biochemistry and engineering fundamentals for engineering applications in fermentation microbiology and biotechnology, and for analysis of natural biological systems. Prereq: 2110, and 2120, or 3120. Not open to students with credit for 625.			
<b>3610</b>	<b>Utilization of Energy in Agriculture</b>	<b>U</b>	<b>3</b>
Study of motive and stationary power needs in agriculture, mechanics of traction, characteristics and selection of power sources, power transmission, principles and design of hydraulic systems. Prereq: 2110. Not open to students with credit for 565.			
<b>3810</b>	<b>Agricultural Structures</b>	<b>U</b>	<b>3</b>
Analysis and design of frames and members for agricultural structures. Prereq: MechEng 2020 or 2040. Not open to students with credit for 545.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Advanced individual study of problems not included in regular courses of this department. Prereq: 6 cr hrs taken at the 3000 level or higher in Engineering. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>4410</b>	<b>Unit Operations in Food Engineering</b>	<b>U</b>	<b>3</b>
Study of unit operations in preserving foods by thermal and alternative food processing methods through problem solving and experimentation. Interdependence of food engineering, chemistry, and microbiology principles in food preservation. Prereq: 3120 and Microbio 4000 (Microbiol 509) or equiv, or permission of instructor. Not open to students with credit for 584 or FdScTe 5400 (630). Cross-listed in FdScTe 5400.			
<b>4500</b>	<b>Advanced Biological Engineering</b>	<b>U</b>	<b>2</b>
An integration of biology, biochemistry and engineering fundamentals for applications in industrial bioprocessing and for analysis and design of biological systems. Prereq: 3120 and 3500.			
<b>4567</b>	<b>Assessing Sustainability: Project Experience</b>	<b>U</b>	<b>3</b>
Students gain experience in sustainability assessment by applying concepts and quantitative methods to evaluate environmental, economic, social, and technical sustainability of specific projects. EEDS major capstone. Prereq: AEDEcon 4330 or ISE 2040, or permission of instructor. Not open to students with credit for ENR 4567 or AEDEcon 4567. Cross-listed in AEDEcon and ENR.			
<b>4900</b>	<b>Capstone Design I</b>	<b>U</b>	<b>3</b>
Engineering design approach in a team environment; practice in the design and communication of a specific system within the student's area of specialization. Must be taken during last full academic year in FABEng. Prereq: 3150. Not open to students with credit for 725.			
<b>4910</b>	<b>Capstone Design II</b>	<b>U</b>	<b>3</b>
Methodology of design in a team environment; practice in the design and communication of a specific system within the student's area of specialization. Continuation of Capstone Design I. Prereq: 4900. Not open to students with credit for 725.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 5</b>
Individually supervised research and project work. Prereq: 6 cr hrs taken at 3000 level or above in Engineering. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research</b>	<b>U</b>	<b>1 - 5</b>
Honors individually supervised research and project work. Prereq: Honors standing, and 6 sem cr hrs taken at the 3000-level or above in Engineering. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis</b>	<b>U</b>	<b>1 - 5</b>
Research leading to an undergraduate thesis. Prereq: 6 cr hrs taken at 3000 level or above in Engineering. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			

## Food, Agricultural, and Biological Engineering 213

**4999H Honors Undergraduate Thesis U 1 - 5**

Honors research leading to an undergraduate thesis.  
Prereq: Honors standing, and 6 sem cr hrs taken at the 3000-level or above in Engineering, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

**5160 Electronics, Measurement and Instrumentation U G 4**

Analysis of analog and digital electronic components and circuits. Analysis and design of measurement systems; data acquisition, signal conditioning, error and noise control, sensors and transducers used in food, agricultural and biological systems.  
Prereq: 3150 or equiv, or Grad standing in Engineering. Not open to students with credit for 605.

**5194 Group Studies U G 1 - 5**

Advanced group studies in Food, Agricultural, Biological, and Ecological Engineering with principal emphasis on design.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

**5200 Appropriate Technology for Developing Countries U G 3**

Introduction to Appropriate Technology product design and development for people in developing countries and the business related topics necessary for commercialization. The focus will be on market driven solutions that help ensure the long term sustainability of the solutions developed.  
Prereq: Engr 1182.01, 1182.02, 1182.03, 1282.01H, 1282.02H, 1282.03H, or 1282.04H; or Grad standing; or permission of instructor.

**5310 Ecological Engineering and Science U G 4**

Definition, classification, and practice of ecological engineering. Course explores ecological ecosystems, ecosystem restoration, and the utilization of natural processes to provide societal services and benefits to nature.  
Prereq: At least one course in Biology, Ecology, Engineering, or Geology, and Jr standing. Not open to students with credit for EnvEng 5310 or ENR 5310. Cross-listed in EnvEng and ENR.

**5350 Sustainable Land and Water Systems U G 2**

An interdisciplinary analysis of interactions of land and water systems, and how upstream management and behavior impacts downstream aquatic systems. A primary focus will be the analysis, comparison and solutions related to eutrophication of coastal systems. This will be supported with research in related disciplines, field experiences, and exploration of stakeholder viewpoints and behaviors.  
Prereq: One course in Biology, EarthSc, Econ, EEOB, Engr, Psych, or PubHlth, or equiv.; or Grad standing.

**5405 Kinetics of Reactions and Reactor Design for Food and Biological Systems U G 4**

Basics of reaction kinetics and reactor design. Material balances in a reactor. Applications of kinetic models to describe changes in food quality attributes and food safety as a function of process parameters. Shelf life estimation of foods based on kinetics. Design, selection and sizing of reactors.  
Prereq: 2110, 3120, and Math 2177.

**5410 Advanced Food Engineering U G 3**

Application of heat and mass transfer, fluid flow, food properties, and food processing constraints in the design and selection of food processing equipment.  
Prereq: 3130 or 4410, or Grad standing. Not open to students with credit for 784.

**5510 Introduction to Polymer Science: A Bio-based Approach U G 3**

This course introduces polymer chemistry through polymers found in nature. It is designed as a unique introduction to the subject, which connects natural and synthetic polymers by exploring the chemistry of natural polymers from plants, animals and humans and self-assembled macromolecular structures. Chapters cover the basic concepts of polymer chemistry.  
Prereq: Chem 2310.

**5520 Phytotechnology and Phytoremediation U G 3**

Engineering principles of using plants for remediation of contaminated sites and treating polluted soil and water. Traditional methods as well as new trends and current research in phytoremediation technologies will be presented.  
Prereq: 3510 or EnvEng 3200, or Grad standing.

**5540 Biomass Conversion to Bioenergy U G 3**

An exploration of the science and technologies used for energy production from bio-based materials, including agricultural biomass and solid waste sources.  
Prereq: 3130 or equiv.

**5550 Sustainable Waste Management U G 3**

A comprehensive examination of waste generation, treatment and reuse including the impacts of pollution on the environment and human health. The focus will be on agricultural residues, manure, domestic wastewater, and municipal solid waste streams.  
Prereq: Sr or Grad standing in Engineering. Not open to students with credit for 650 or 652.

**5620 Fluid Power Systems U G 3**

Analysis and design of fluid power systems used in mobile (off-road) agricultural, maintenance and earth moving equipment. Topics include: positive displacement components, control devices, actuators, fluids and fluid transmission electrohydraulics, system dynamics, and the use of state-of-the-art design and analysis tools.  
Prereq: 2110 or MechEng 3503; and MechEng 2020 or 2040; or Grad standing in engineering.

**5730 Design of Agricultural Water Management Systems U G 3**

Use of soil physics, porous media flow theory, soil-plant interactions, hydrology, and hydraulics to design and manage irrigation and drainage systems.  
Prereq: 2110 or CivilEn 3130 (413), and 2720 (373) or equiv; or Grad standing. Not open to students with credit for 673.

**5750 Stream Geomorphology and Watershed Hydrology U G 3**

Fundamental and advanced topics in stream geomorphology and hydrologic processes. Solving multi-objective engineering problems in a team setting involving protection, enhancement, and restoration of streams, rivers, and watersheds.  
Prereq: 2110 or CivilEn 3130 (413), and 2720 (373), or equiv; or Grad standing. Not open to students with credit for 773.

**5760 Design of Urban Stormwater Control Measures U G 3**

Fundamental and advanced hydrologic and water quality design of stormwater controls for urban areas. Students will be expected to solve multi-objective, real-world engineering problems in a team setting.  
Prereq: 2720 or CivilEn 3160, or Grad standing, or permission of instructor. Cross-listed in EnvEng.

**5797 Study at a Foreign Institution U G 1 - 15**

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.  
Prereq: Permission of department chairperson. Repeatable to a maximum of 25 cr hrs or 3 completions. This course is progress graded.

**5810 Design of Timber and Wood-Framed Building Systems U G 3**

Behavior and material properties of wood construction in structures. Design methodology of timber structural elements and connections. Analysis methods and design process of post-frame and stick-framed building structures for commercial, agricultural, or residential use. Continuous lateral load path and the design of wood diaphragms, shear walls, and anchorage to foundation.  
Prereq: 3810 or CivilEn 3130; or Grad standing in FABEng or CivilEn; or permission of instructor.

**5820 Environmental Controls and Air Quality U G 3**

Heating, ventilation, and air conditioning (HVAC) engineering applied to agricultural, residential, and commercial structures; analysis of factors affecting energy utilization and air quality; green and sustainable HVAC technologies.  
Prereq: 3130, MechEng 510, or ChBE 521. Not open to students with credit for 645.

**6020 Foundations of Data-Driven Sustainable Energy Systems G 3**

Introduction to issues impacting sustainable energy systems across technology, law and policy, business models, resilience, data, geospatial, and decision sciences.  
Prereq: Enrollment in Data-Driven Sustainable Energy Systems Graduate Interdisciplinary Specialization or permission of instructor. Not open to students with credit for AEDEcon 6500, EnvEng 6020, Geog 6020, ISE 6020, or PubAfrs 6020. Cross-listed in AEDEcon 6500, EnvEng 6020, Geog 6020, ISE 6020, and PubAfrs 6020.

**6193 Individual Studies G 1 - 5**

Individual study of topics not included in regular courses; practice in development, organization, solution, and reporting on problems of student's choosing with faculty supervision.  
Prereq: Grad standing in Engineering. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.

**6194 Group Studies G 1 - 5**

Advanced group studies in Food, Agricultural and Biological Engineering with principal emphasis on design.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.

**6999 Graduate Research in Food, Agricultural and Biological Engineering for Thesis G 1 - 18**

Research for thesis.  
Repeatable. This course is graded S/U.

**7210 Research Methods in Food, Agricultural, and Biological Engineering G 3**

Historical development of the research process. Problem selection and proposal development. Processes for acquiring funding and conducting quality research.  
Prereq: Grad standing in Engineering. Not open to students with credit for 801.

**7220 College Teaching in Engineering G 2**

Initial preparation for providing instruction in professional engineering programs at the college level including skills, strategies and issues common to university teaching in general and engineering instruction more specifically.  
Prereq: Not open to students with credit for 810. This course is graded S/U.

**7230 Probabilistic Methods in Engineering Design G 3**

Application of concepts of probability, random variables, statistical inference, multiple regression, multi-variate analysis, correlation analysis and concepts of Bayesian methodology to make reliable engineering design decisions.  
Prereq: Stat 3460 (427) or 3470 (427), or permission of instructor. Not open to students with credit for 735.

## 214 Food, Agricultural, and Biological Engineering

<b>7430</b>	<b>Advanced Food Process Design</b>	<b>G</b>	<b>3</b>
An integration of quantitative parameters describing changes in the quality attributes of foods with quantification of the physical changes occurring between the time of raw material harvest or assembly and the point of food consumption. Models to predict changes in quality attributes as a function of process parameters will be developed and demonstrated. Prereq: FdScTe 5400, 5536, 5600, or FABEng 3481 or 4410, or permission of instructor. Not open to students with credit for FdScTe 7430. Cross-listed in FdScTe.			
<b>7890</b>	<b>Seminar</b>	<b>G</b>	<b>1</b>
Lecture and discussion of current topics related to food, agricultural and biological engineering presented by faculty, staff, graduate students, and guest speakers. Prereq: Grad standing in Engineering. Repeatable to a maximum of 8 cr hrs or 8 completions. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Advanced individual study of topics not included in regular courses; practice in development, organization, solution, and reporting on problems of student's choosing with faculty supervision. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Advanced group studies in Food, Agricultural and Biological Engineering with principal emphasis on design. Repeatable to a maximum of 10 cr hrs or 4 completions.			
<b>8999</b>	<b>Food, Agricultural and Biological Engineering Research for Dissertation</b>	<b>G</b>	<b>1 - 18</b>
Research for dissertation. Prereq: Doct standing in FABEng. Repeatable. This course is graded S/U.			

### Food, Agricultural, and Environmental Sciences

<b>1100</b>	<b>Introduction to Ohio State University and Food, Agricultural and Environmental Sciences</b>	<b>U</b>	<b>½</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of academic areas of study. Prereq: Not open to students with credit for 100, or equiv.			
<b>1100H</b>	<b>Introduction to Ohio State University and Food Agricultural, and Environmental Sciences - Honors</b>	<b>U</b>	<b>½</b>
Academic requirements; University procedures, grading system, resources; student rights and responsibilities; overview of academic areas of study. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 100H, 101, ArtsCol 100, ArtsSci 100, Engineer 100, HomeEc 100, NatRes 100, or UVCSurv 100.			
<b>1200</b>	<b>Kellogg and Moser Food Security and Sustainability Learning Community Seminar</b>	<b>U</b>	<b>1</b>
This course will be for students living in the W.K. Kellogg Foundation and Bobby Moser Food Security and Sustainability Learning Community (LC). Course content will include guest lecturers, field experiences, and the conception of a culminating project surrounding the topics of food security and sustainability. Prereq: Acceptance in W.K. Kellogg Foundation and Bobby Moser Food Security and Sustainability Learning Community, and permission of instructor. This course is graded S/U.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Planning, conducting, and reporting a special study appropriate to the needs of the student. Prereq: Cumulative GPA 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group study classes or projects in selected interdisciplinary topics in Agriculture.			
<b>3000</b>	<b>Peer Mentor Leadership</b>	<b>U</b>	<b>1</b>
Peer mentors in this course will learn skills in leadership, student development, academic development, and community building while engaging constructively with aspects of identity and how identity shapes perspective. Prereq: Acceptance into Peer Mentor Program, or permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>3191</b>	<b>Conducting Your Internship in the College of Food, Agricultural, and Environmental Sciences</b>	<b>U</b>	<b>0</b>
The College of Food, Agricultural, and Environmental Sciences strives to provide opportunities for students to develop the critical competencies and technical knowledge and skills that employers demand in the job market and that are necessary for student success in their chosen field. This class provides students the structure to complete the initial requirements of their internship experience. Prereq: Internship approval, and permission of instructor. Repeatable to a maximum of 6 completions. This course is graded S/U.			
<b>3790.04</b>	<b>Panama: Through the Lens of Agriculture, Diversity and Sustainability</b>	<b>U</b>	<b>1</b>
Provides perspective of agriculture and other economic sectors that influence food, fiber, and fuel. This is a 1-credit hour course designed to educate and prepare students to experience the various applications of agriculture and systems on varying scenarios, especially within a socioeconomic and ethnically diverse context. Students will investigate and present background information on Panama. Prereq: Admission to Education Abroad program. Repeatable to a maximum of 3 cr hrs.			

<b>3797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition as well as all travel and subsistence costs. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 3 completions.			
<b>3797.03</b>	<b>First Year Experience Study at a Foreign Institution</b>	<b>U</b>	<b>3</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition as well as all travel and subsistence costs.			
<b>3797.04</b>	<b>Panama: Through the Lens of Agriculture, Diversity and Sustainability</b>	<b>U</b>	<b>2</b>
Provide perspective of agriculture and other economic sectors that influence food, fiber, and fuel. Designed to allow students to experience various applications of agriculture and systems within socioeconomic and ethnically diverse contexts, and to experience culture and applications of agriculture based on resources and needs of the country. Admission to the Panama: Through the Lens of Agriculture, Diversity and Sustainability program required prior to enrollment. Prereq: A grade of C or above in 3790.04. Repeatable to a maximum of 6 cr hrs.			
<b>4580</b>	<b>CFAES Global Option Capstone</b>	<b>U</b>	<b>1</b>
Synthesis of international experiences completed as part of the CFAES Global Option. Emphasis on learning, practicing, and applying principles and strategies related to the international aspects of the student's major. Prereq: Enrollment in the CFAES Global Option, and permission of instructor.			
<b>4797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 15</b>
Study at a foreign institution. Repeatable to a maximum of 30 cr hrs or 15 completions.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Study in interdisciplinary topics in Agriculture. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition as well as all travel and subsistence costs. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 3 completions. This course is progress graded.			

### French

<b>1101.01</b>	<b>Beginning French I Classroom</b>	<b>U</b>	<b>4</b>
Introduction to French; development of listening, reading, speaking, and writing skills. Taught in French. Course is not open to native speakers of this language, students with EM credit, or to students with two or more years of study in this language in high school. Prereq: Not open to students with credit for 1101.01, 101.01, 4 sem cr hrs of 1101.51, or 5 qtr cr hrs of 101.51. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1101.21</b>	<b>Beginning French I DL</b>	<b>U</b>	<b>4</b>
Distance learning version of introduction to French; development of listening, reading, speaking, and writing skills. Taught in French. Course not open to native speakers, students with EM credit, or to students with two or more years of study in this language in high school. Prereq: Not open to students with credit for 1101.01 or 4 credits of 1101.51 or 1101.61. This course is available for EM credit. GE for lang course.			
<b>1101.51</b>	<b>Beginning French I Individualized</b>	<b>U</b>	<b>1 - 4</b>
Introduction to French; development of listening, reading, speaking, and writing skills. Taught in French. Course not open to native speakers, students with EM credit, or to students with two or more years of study in this language in high school. Prereq: Not open to students with credit for 1101.01, 101.01, 4 sem cr hrs of 1101.51, or 5 qtr cr hrs of 101.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1101.61</b>	<b>Beginning French I: Individualized DL</b>	<b>U</b>	<b>1 - 4</b>
Individualized introduction to French via distance learning; development of listening, reading, speaking, and writing skills. Taught in French. Course not open to native speakers, students with EM credit, or to students with two or more years of study in this language in high school. Prereq: Not open to students with credit for 1101.01 or 4 credits of 1101.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.			
<b>1102.01</b>	<b>Beginning French II Classroom</b>	<b>U</b>	<b>4</b>
Continued study of French; development of listening, reading, speaking, and writing skills; readings based on contemporary French Culture and literature. Taught in French. Not open to native speakers of this language or with credit through regular course enrollment, or students with EM credit. Prereq: 1101.01, 102.01, or 102.66, or completion of 4 sem cr hrs in 1101.51 or 5 qtr cr hrs of 102.51. Not open to students with credit for 1102.01, 1102.30, 103.01, 103.51, or 103.66. This course is available for EM credit. GE for lang course. FL Admis Cond course.			



<b>1102.21</b>	<b>Beginning French II DL</b>	<b>U</b>	<b>4</b>
Distance learning version of continued introduction to French; development of listening, reading, speaking, and writing skills. Taught in French. Course not open to native speakers, students with EM credit, or to students with two or more years of study in this language in high school. Prereq: 1101.01 or 1101.21, or completion of 4 cr hrs of 1101.51 or 1101.61. Not open to students with credit for 1102.01 or 4 credits of 1102.51 or 1102.61. This course is available for EM credit. GE for lang course.			
<b>1102.51</b>	<b>Beginning French II Individualized</b>	<b>U</b>	<b>1 - 4</b>
Continued study of French; development of listening, reading, speaking, and writing skills; readings based on contemporary French Culture and literature. Taught in French. Closed to native speakers. Prereq: 1101.01, or completion of 4 cr hrs of 1101.51. Not open to students with EM credit. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1102.61</b>	<b>Beginning French II: Individualized DL</b>	<b>U</b>	<b>1 - 4</b>
Continued individualized study of French via distance learning; development of listening, reading, speaking, and writing skills; readings based on contemporary French culture and literature. Taught in French. Prereq: 1101.01, or completion of 4 cr hrs of 1101.51 or 1101.61. Not open to students with credit for 1102.01 or 4 credits of 1102.51. Repeatable to a maximum of 4 completions or 4 cr hrs. This course is available for EM credit. GE for lang course.			
<b>1103.01</b>	<b>Beginning French III Conversation and Composition</b>	<b>U</b>	<b>4</b>
Continued development of listening, speaking, reading and writing with an emphasis on oral and written skills; focus on functional topics and thematic vocabulary. Taught in French. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1102.01 or 4 sem cr hrs of 1102.51; or 102.01 and 2 sem cr hrs of 1102.51; or 102.66 and 2 sem cr hrs of 1102.51; or 103.01, 103.66, or 5 qtr cr hrs of 103.51. Not open to students with credit for 1103.xx (104.xx). Only one decimal subdivision may be taken for credit. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.02</b>	<b>Beginning French III Conversation</b>	<b>U</b>	<b>4</b>
Emphasis on speaking and aural comprehension with special attention to practical situations. Focus on content area such as cinema. Taught in French. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1102.01 or 4 sem cr hrs of 1102.51; or 102.01 and 2 sem cr hrs of 1102.51; or 102.66 and 2 sem cr hrs of 1102.51; or 103.01, 103.66, or 5 qtr cr hrs of 103.51. Not open to students with credit for 1103.xx (104.xx). Only one decimal subdivision may be taken for credit. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.21</b>	<b>Beginning French III DL</b>	<b>U</b>	<b>4</b>
Distance learning version of continued introduction to French; development of listening, reading, speaking, and writing skills. Taught in French. Course not open to native speakers, students with EM credit, or to students with two or more years of study in this language in high school. Prereq: 1102.01 or 1102.21, or completion of 4 cr hrs of 1102.51 or 1102.61. Not open to students with credit for 1103.01 or 4 credits of 1103.51 or 1103.61. This course is available for EM credit. GE for lang course.			
<b>1103.51</b>	<b>Beginning French III Individualized</b>	<b>U</b>	<b>1 - 4</b>
Continued development of listening, speaking, reading and writing with an emphasis on oral and written skills; focus on functional topics and thematic vocabulary. Taught in French. Prereq: 1101.01 & 1102.01; or completion of 4 cr hrs of both 1101.51 & 1102.51. Not open to students with credit for 1103 or 104; not open to native speakers of this language through regular course enrollment or EM credit. Only one decimal subdivision may be taken for credit. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.61</b>	<b>Beginning French III: Individualized DL</b>	<b>U</b>	<b>1 - 4</b>
Continued development of listening, speaking, reading and writing with an emphasis on oral and written skills; focus on functional topics and thematic vocabulary. Taught in French via distance learning. Prereq: 1101.01 and 1102.01; or completion of 4 cr hrs of 1101.51 or 1101.61, and completion of 4 cr hrs of 1102.51 or 1102.61. Not open to students with credit for 1103.01, 1103.02, 1103.03, or 1103.04; or 4 cr hrs of 1103.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.			
<b>1155.01</b>	<b>Beginning French Review Classroom</b>	<b>U</b>	<b>4</b>
Intensive beginning French. Review of basic structures, vocabulary and skills. Taught in French. Not open to native speakers of this language. Prereq: 2 or more years of high school French, and placement in 1101.01 by EM credit only. Not open to students with credit for 1101.01 (101.01), 1101.51 (101.51), 1102.01 (102.01), 1102.51 (102.51), 102.66, 103.01, 103.51, or 103.66. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1155.21</b>	<b>Beginning French Review DL</b>	<b>U</b>	<b>4</b>
Distance learning version of intensive beginning French. Review of basic structures, vocabulary and skills. Taught in French. Not open to native speakers of this language. Prereq: 2 or more years of high school French, and placement in 1101 by EM credit only. Not open to students with credit for 1101.01, 1101.21, 1101.51, 1101.61, 1102.01, 1102.21, 1102.51, 1102.61, 1103.01, 1103.21, 1103.51, 1103.61, or 1155.01. This course is available for EM credit. GE for lang course.			

<b>1801</b>	<b>Masterpieces of the French-Speaking World</b>	<b>U</b>	<b>3</b>
Classic works of literature in translation by French and francophone authors from the 17th century to the present, such as Moliere, Madame de Lafayette, Voltaire, Flaubert, Duras, Cesaire, and Senghor. GE lit and diversity global studies course.			
<b>1803.01</b>	<b>Paris</b>	<b>U</b>	<b>3</b>
Exploration of the city of Paris through the study of its history, geography, population, and cultural production, including but not limited to art, architecture, cinema, literature, fashion, and cuisine. Prereq: Not open to students with credit for 1803.02 and 1803.03. GE cultures and ideas course.			
<b>1803.03</b>	<b>Global May Paris</b>	<b>U</b>	<b>3</b>
This course is on the cultural history of the city of Paris, it takes places on a study abroad trip to Paris in May. Prereq: Not open to students with credit for 1803.01. GE cultures and ideas course.			
<b>2101.01</b>	<b>Introduction to French and Francophone Studies</b>	<b>U</b>	<b>3</b>
Techniques for reading and interpreting different types of texts from the French-speaking world: stories, poetry, plays, films, music, and ads while building vocabulary, comprehension, speaking and writing skills. Prereq: 4 cr hrs of 1103, or permission of instructor. This course is available for EM credit.			
<b>2101.01H</b>	<b>Honors Introduction to French and Francophone Studies</b>	<b>U</b>	<b>3</b>
Techniques for reading and interpreting different types of texts from the French-speaking world: stories, poetry, plays, films, music, and ads while building vocabulary, comprehension, speaking and writing skills. Prereq: Honors standing, and 4 cr hrs of 1103.01 or 5 cr hrs of 104; or permission of instructor. Not open to students with credit for 201.01, 201.01H, 201.51, or 206. This course is available for EM credit. FL Admis Cond course.			
<b>2101.51</b>	<b>Introduction to French and Francophone Studies Individualized</b>	<b>U</b>	<b>1 - 3</b>
Techniques for reading and interpreting different types of texts from the French-speaking world: stories, poetry, plays, films, music, and ads while building vocabulary, comprehension, speaking and writing skills. Prereq: 4 cr hrs of 1103 or 5 cr hrs of 104, or permission of instructor. Not open to students with credit for 201.01, 201.51, or 206. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is available for EM credit. FL Admis Cond course.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 15</b>
Individual studies. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 15</b>
Group studies. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>2501</b>	<b>Topics in French Literature and Culture in Translation</b>	<b>U</b>	<b>3</b>
Variable topics in French and Francophone literatures and cultures; taught in English. Prereq: Not open to students with credit for 250. Repeatable to a maximum of 6 cr hrs. GE lit course.			
<b>2801</b>	<b>French Cinema</b>	<b>U</b>	<b>3</b>
Introduction to the study of the cinema and to French film classics. Students will explore cinema as an art form, the social and cultural history of France as it relates to the cinema, and the qualities that make individual films cinematic masterpieces. Taught in English. GE VPA course.			
<b>2802</b>	<b>Comics and Culture</b>	<b>U</b>	<b>3</b>
This course examines comic books and graphic novels of the 'Franco-Belgian tradition' ('bande dessinée' or BD), particularly as they engage in questions of the representation of cultures and identities. Taught in English. GE cultures and ideas course.			
<b>3101</b>	<b>French Grammar Review</b>	<b>U</b>	<b>3</b>
Consolidation of previously learned grammar and introduction to new grammatical concepts. Practice in speaking French with attention to comprehension and oral expression. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: French 1103.01 (104.01), or 4 sem cr hrs of 1103.51 (5 qtr cr hrs of 104.51), or equiv. Students with 4 sem cr hrs or 5 qtr cr hrs for 1103.02 (104.02), 1103.03 (104.03), or 1103.04 (104.04) will need permission from the instructor to enroll. Prereq or concur: 2101.01 (201.01), or 2101.01H, or 3 sem cr hrs of 2101.51 (5 qtr cr hrs of 201.51), or 206. Not open to students with credit for 401. This course is available for EM credit.			
<b>3102</b>	<b>French Pronunciation and Performance</b>	<b>U</b>	<b>3</b>
Formation of French sounds, rules of pronunciation and diction. Reading and performing poems, excerpts from plays, public performances, television or film scripts. Prereq: 3101 or 401. Not open to students with credit for 404.			
<b>3103</b>	<b>French Conversation</b>	<b>U</b>	<b>3</b>
Practice in speaking French on a variety of topics; building of practical vocabulary; emphasis on comprehension and oral expression. Prereq: 2101.01 (201.01), or 2101.01H, or 3 sem cr hrs of 2101.51 (5 qtr cr hrs of 201.51), or 206. Not open to students with credit for 402.			

## 216 French

<b>3201</b>	<b>French Literary and Visual Texts</b>	<b>U</b>	<b>3</b>
Students improve reading, writing, and speaking skills by analyzing and discussing full-length French literary works and visual texts-such as paintings, fashion, photographs, and films from the Middle ages to the present. Prereq: 2101.01 (201.01), or 2101.01H, or 3 sem cr hrs of 2101.51 (5 qtr cr hrs of 201.51), and 3101 (401). Not open to students with credit for 425 or 426.			
<b>3202</b>	<b>Literary and visual texts of the Francophone world</b>	<b>U</b>	<b>3</b>
Readings and analysis of Francophone literary and multimedia texts that provide an appreciation and understanding of the French-speaking world. Prereq: 2101.01 (201.01), or 2101.01H, or 3 cr hrs of 2101.51 (5 cr hrs of 201.51), and 3101 (401). Not open to students with credit for 427.			
<b>3401</b>	<b>Introduction to Contemporary France</b>	<b>U</b>	<b>3</b>
Introduction to ways of studying major aspects of French culture by means of lectures, readings, research projects, media, and internet. Prereq: 2101.01, or 2101.01H, or 3 sem cr hrs of 2101.51, or 206; and 3101. Not open to students with credit for 440.			
<b>3402</b>	<b>Introduction to Francophone Cultures</b>	<b>U</b>	<b>3</b>
Introduction to ways of studying major aspects of Francophone cultures by means of lectures, readings, research projects, media, and internet. Prereq: 2101.01 (201.01), or 2101.01H, or 3 cr hrs of 2101.51 (5 cr hrs of 201.51), or 206, and 3101 (401).			
<b>3403</b>	<b>Topics in French-Speaking Cultures</b>	<b>U</b>	<b>3</b>
Exploration of various facets of French and Francophone cultures through texts and media. Prereq: 2101.01 (201.01), or 2101.01H, or 3 cr hrs of 2101.51 (5 cr hrs of 201.51); and 3101 (401). Repeatable to a maximum of 6 cr hrs.			
<b>3501</b>	<b>Introduction to French for the Professions</b>	<b>U</b>	<b>3</b>
An introduction to business French with emphasis on basic business terminology, commercial correspondence, similarities and differences in business transactions, and international procedures. Prereq: 3101 (401, 402, 403) or 3102 (404); permission of instructor. Not open to students with credit for 406.			
<b>3502</b>	<b>French for International Studies</b>	<b>U</b>	<b>3</b>
Develop specific language skills and cultural competences to work in broad field of international studies in the US, France, and other Francophone regions. Learn about relations among French-speaking nations and regions, about int'l Francophone organizations, and about current events in the French-speaking world. Improve reading, writing, listening, and speaking skills in French. Taught in French. Prereq: 2101 or equiv.			
<b>3570</b>	<b>CLLC Radio</b>	<b>U</b>	<b>3</b>
Student partners prepare 3 target language broadcasts, each 1 hour in length. Broadcasts stream live over the Internet, then become podcast for public use. Student "DJs" conduct target language research on radio broadcast history and at least 15 thematic topics and related music that interests them. Student choose their music and content with approval and guidelines, then produce scripts. Prereq: Permission of instructor.			
<b>3701</b>	<b>Introduction to French Cinema</b>	<b>U</b>	<b>3</b>
Introduction to the study of French cinema, French film history and the art of the cinema. Prereq: 3101 (401). Not open to students with credit for 470.			
<b>3797</b>	<b>Intermediate Study at a French Institution</b>	<b>U</b>	<b>1 - 15</b>
Group studies at a French institution. Prereq: Permission of department chairperson or study abroad office. Repeatable. This course is progress graded.			
<b>3801</b>	<b>French-American Culture Wars</b>	<b>U</b>	<b>3</b>
French-American cultural relations since World War I; an exploration of French reaction to and adoption or rejection of a number of American cultural "exports," from jazz and the GI to Coke and consumerism. Taught in English. Prereq: Not open to students with credit for 153. GE cultures and ideas course.			
<b>4100</b>	<b>Advanced French Grammar for Contemporary Contexts</b>	<b>U</b>	<b>3</b>
Review and expansion of grammatical structures as they are used in speaking and writing in a variety of especially contemporary contexts. Prereq: 3101, and at least two other courses taught in French at the 3000-level or above; or permission of instructor. Not open to students with credit for 5101. This course is available for EM credit.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 15</b>
Individual studies. Prereq: Written permission of department. Not open to students with 30 cr hrs for 693. Repeatable to a maximum of 30 cr hrs or 30 completions.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 15</b>
Group studies. Prereq: Written permission of department. Not open to students with 30 cr hrs for 694. Repeatable to a maximum of 30 cr hrs or 30 completions.			

<b>4401</b>	<b>Topics in French and Francophone Studies</b>	<b>U</b>	<b>3</b>
In-depth exploration of a theme, issue, or question in French and/or Francophone Studies broadly conceived. Topics vary. Taught in French. Prereq: 3101; and 3201, 3202, 3401, 3402, 3403, 3501, or 3701; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4402</b>	<b>France from the Great War to the Present: Culture in Flux</b>	<b>U</b>	<b>3</b>
Examines key historical events and cultural and social reactions to them in France from WWI to present through analyses of historical and literary texts, speeches, films, and songs. Focuses on understanding contemporary French culture through exploration of France's recent past. Helps students improve language skills through practice reading, writing, speaking, and listening to French. Prereq: 3101, and 3201, 3202, 3401, 3402, 3403, or 3701; or permission of instructor.			
<b>4690</b>	<b>French for the Professions Internship</b>	<b>U</b>	<b>1 - 6</b>
Supervised training in international (French-speaking) business. Prereq: 3501 (406) or permission of instructor. Notify Department chair no later than six months or one semester prior to start of internship. Not open to students with 6 cr hrs for 690. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U. FL Admis Cond course.			
<b>4797</b>	<b>Advanced Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 15</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Written permission of department chairperson. Not open to students with 45 cr hrs for 697. Repeatable. This course is progress graded. FL Admis Cond course.			
<b>4998</b>	<b>Undergraduate Research Projects</b>	<b>U</b>	<b>1 - 6</b>
Undergraduate research or creative activities. Topics vary. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>4998H</b>	<b>Honors Undergraduate Research Projects</b>	<b>U</b>	<b>1 - 6</b>
Undergraduate research or creative activities for honors students. Topics vary. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate thesis. Topics vary. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate thesis for honors students. Topics vary. Prereq: Honors standing and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>5103</b>	<b>French Translation and Interpretation</b>	<b>U G</b>	<b>3</b>
An introduction to the theory and practice of translation (French to English and English to French) based on texts reflecting different types of written communication. Prereq: Undergrad students must have credit for 5101 (601). Not open to students with credit for 602			
<b>5104</b>	<b>Medieval French</b>	<b>U G</b>	<b>3</b>
Introduction to medieval French grammar and vocabulary, using a medieval text as vehicle. Prereq: 3101, and at least two 3000-level French courses or above; or grad standing, and permission of Graduate Studies Chair. Not open to students with credit for 7101 (716.01).			
<b>5105</b>	<b>Medieval Occitan</b>	<b>U G</b>	<b>3</b>
Introduction to the language and literature of medieval Occitan, especially to that of the troubadours. Prereq: 3101, and at least two additional 3000-level French courses or above; Grad standing; or permission of instructor. Not open to students with credit for 7102.			
<b>5194</b>	<b>Combined UG and Grad Group Studies</b>	<b>U G</b>	<b>1 - 15</b>
Group studies. Prereq: Permission of instructor, or permission of Graduate Studies Chair (graduate students only). Not open to students with 30 cr hrs for 694. Repeatable. FL Admis Cond course.			
<b>5201</b>	<b>Gothic to Renaissance: Texts and Contexts</b>	<b>U G</b>	<b>3</b>
Survey of French literature of the Middle Ages from its inception to Villon, with emphasis on different literary genres (epics, narrative fiction, poetry, theatre). Prereq: 3101 (401) and either 3201 (425, 426), or 3202 (427); graduate students require written permission of the Graduate Studies Chair in consultation with student's advisor. Not open to students with credit for 650 or 721. FL Admis Cond course.			
<b>5202</b>	<b>Versailles to the Enlightenment: Texts and Contexts</b>	<b>U G</b>	<b>3</b>
Major early modern French literary movements and authors to major ideas and authors of the 18th century in France; emphasis on such writers as Montesquieu, Voltaire, Diderot, and Rousseau. Prereq: 3101 (401) and either 3201 (425, 426), or 3202 (427); graduate students require written permission of the Graduate Studies Chair in consultation of student's advisor. Not open to students with credit for 652 and 653. FL Admis Cond course.			

<b>5203</b>	<b>Romanticism to Surrealism: Texts and Contexts</b>	<b>U G</b>	<b>3</b>
French literary movements and individual works situated in their historical contexts from the turn of the 19th century to World War I. Prereq: 3101 (401), and either 3201 (425 and 426) or 3202 (427); or Grad standing (graduate students require written permission of the Graduate Studies Chair in consultation with student's advisor). Not open to students with credit for 655. FL Admis Cond course.			
<b>5204</b>	<b>World Wars and Beyond: Texts and Contexts</b>	<b>U G</b>	<b>3</b>
Major intellectual and literary currents in France from the early 20th century to the present. Prereq: 3101 (401), and either 3201 (425 and 426) or 3202 (427); or Grad standing (graduate students require permission of the Graduate Studies Chair).			
<b>5205</b>	<b>Black Africa and Diaspora: Texts and Contexts</b>	<b>U G</b>	<b>3</b>
Major intellectual and literary currents in black Africa and the Caribbean. Prereq: 3101 (401), and either 3201 (425 and 426) or 3202 (427); or Grad standing (graduate students require written permission of the Graduate Studies Chair in consultation with student's advisor). Not open to students with credit for 657.01. FL Admis Cond course.			
<b>5206</b>	<b>North Africa: Texts and Contexts</b>	<b>U G</b>	<b>3</b>
Major intellectual and literary currents in Francophone North Africa. Prereq: 3101 (401), and either 3201 (425 and 426) or 3202 (427); or Grad standing (graduate students require written permission of the Graduate Studies Chair in consultation with student's advisor). Not open to students with credit for 657.02. FL Admis Cond course.			
<b>5401</b>	<b>Louis XIV to World War I</b>	<b>U G</b>	<b>3</b>
Political and cultural history of France from Absolute Monarchy to World War I. Prereq: 3101 (401) and 3401 (440), or permission of instructor; or Grad standing and permission of Graduate Chair and student advisor. Not open to students with credit for 643. FL Admis Cond course.			
<b>5403</b>	<b>Topics in French-Speaking Cultures and Literatures</b>	<b>U G</b>	<b>3</b>
Intense exploration of an aspect of French or Francophone culture or literature. Prereq: 3101, and either 3201 or 3202; or Grad standing (graduate students require written permission of the Graduate Studies Chair in consultation with student's advisor). Repeatable to a maximum of 9 cr hrs.			
<b>5701</b>	<b>Topics in French and Francophone Cinema</b>	<b>U G</b>	<b>3</b>
Study of the history and aesthetics of French cinema. Topics vary. Prereq: For undergraduates - 3101 (401) plus one additional 3000- or 4000-level (400-level) course taught in French. For graduate students - Permission of the Graduate Advisor. Not open to students with credit for 670. FL Admis Cond course.			
<b>5702</b>	<b>Studies in French Cinema</b>	<b>U G</b>	<b>3</b>
Study of the history and aesthetics of French cinema. Taught in English. Prereq: 10 qtr cr hrs or 6 sem cr hrs in Literature and/or Cinema taken at the 2000 (200) level, or permission of instructor; or Grad standing, and permission of the Graduate Studies Chair in consultation with student's advisor. Not open to students with credit for 672. Repeatable to a maximum of 6 cr hrs.			
<b>5797</b>	<b>Advanced and Graduate Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 6</b>
An opportunity for advanced undergraduate and graduate students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of department study abroad credit advisor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>6193</b>	<b>Graduate Independent Study</b>	<b>G</b>	<b>1 - 15</b>
Graduate independent study. Repeatable to a maximum of 30 cr hrs or 30 completions.			
<b>6194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 15</b>
Graduate group studies. Repeatable to a maximum of 30 cr hrs or 30 completions.			
<b>6571</b>	<b>French Reading for Research I</b>	<b>G</b>	<b>3</b>
Designed primarily for students who have no formal preparation in French; covers basic grammar and vocabulary and develops students' reading skills. Credit does not apply to the minimum number of hours required for the master's or doctoral degrees. Prereq: Grad standing.			
<b>6999</b>	<b>Master's Thesis</b>	<b>G</b>	<b>1 - 15</b>
Master's thesis. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8193</b>	<b>Advanced Graduate Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Graduate independent study. Prereq: Written permission of instructor. Not open to students with 15 cr hrs for 893. Repeatable to a maximum of 18 cr hrs or 18 completions. FL Admis Cond course.			
<b>8194</b>	<b>Advanced Graduate Group Studies</b>	<b>G</b>	<b>1 - 9</b>
Investigation of problems in the various fields of French literature and language. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions. FL Admis Cond course.			
<b>8202</b>	<b>Classical and Enlightenment Studies</b>	<b>G</b>	<b>3</b>
Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship through 17th- and 18th-century France. Repeatable to a maximum of 12 cr hrs. FL Admis Cond course.			

<b>8204</b>	<b>Francophone Studies</b>	<b>G</b>	<b>3</b>
Various topics and issues in non-European francophone literatures and cultures. Repeatable to a maximum of 12 cr hrs.			
<b>8205</b>	<b>French and Francophone Studies Across Boundaries</b>	<b>G</b>	<b>3</b>
Study of aspects of French and Francophone literature, culture, and film across boundaries of historical period, geography, genre, and/or medium. Variable topics. Repeatable to a maximum of 9 cr hrs.			
<b>8302</b>	<b>Issues in Second Language Studies</b>	<b>G</b>	<b>3</b>
Explores in depth a particular area or issue of second language acquisition. Repeatable to a maximum of 12 cr hrs.			
<b>8303</b>	<b>Teaching Apprenticeship</b>	<b>G</b>	<b>1 - 3</b>
An apprenticeship for advanced doctoral students to work with faculty members on the design and teaching of upper-level French language, literature, and culture courses. Prereq: Two years previous teaching experience; permission of instructor and graduate studies chair. Not open to students with 10 cr hrs for 903. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>8998</b>	<b>Pre-Candidacy Research</b>	<b>G</b>	<b>1 - 9</b>
Pre-candidacy research and examination preparation for advanced graduate students. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 9</b>
Research for dissertation. Prereq: Candidacy exams completed. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U. FL Admis Cond course.			

## French and Italian

<b>2061</b>	<b>Mediterranean Food Culture</b>	<b>U</b>	<b>3</b>
This course studies Mediterranean Food Culture by exploring culinary metaphors and the relationships between cuisine and language, while discovering what kinds of tools we need to study food as a cultural product. Prereq: Not open to students with credit for Italian 2061. GE cultures and ideas and diversity global studies course.			
<b>3052</b>	<b>Mediterranean Voyages: Migration and Travel</b>	<b>U</b>	<b>3</b>
An exploration of human movement in the contemporary Mediterranean: tourism vs migration. Survey of the historical varieties of travel in the Mediterranean and examination of contemporary written and filmed narratives of migration in the Mediterranean zone. Prereq: English 1110 or equiv. Not open to students with credit for CompStd 3052 or Italian 3052. GE cultures and ideas and diversity global studies course. Cross-listed in CompStd.			
<b>3053</b>	<b>The Black Mediterranean</b>	<b>U</b>	<b>3</b>
This course offers a broad survey of the Black Mediterranean, from the Ancient World through the present. GE cultures and ideas and diversity global studies course.			
<b>3054</b>	<b>The 21st-Century Skill: Intercultural Competence for Global Citizenship</b>	<b>U</b>	<b>3</b>
In this course students will develop cultural self-awareness, intercultural empathy, and an understanding of the patterns of behavior and values of people from different cultural contexts - all skills necessary for working and succeeding in the 21st century. Prereq: Any world language course at the 1103 level, or equiv. GE diversity global studies course.			
<b>3301</b>	<b>Discovering Second Language Acquisition</b>	<b>U</b>	<b>3</b>
Introduces undergraduates to second language acquisition (SLA), how children and adults learn new languages. Students explore contemporary approaches to SLA and evaluate the effectiveness of various language-teaching practices. Taught in English.			
<b>5051</b>	<b>Latin and the Romance Languages</b>	<b>U G</b>	<b>3</b>
Examines the socio-historical factors and the linguistic processes that contributed to the formation of the Romance languages and to their divergences. Course taught in English. Prereq: Equivalent of 1103 in Italian, French, Spanish, Portuguese, Romanian, or Latin, or permission of instructor. Not open to students with credit for RomLing 5051 or Clas 5051. Cross-listed in Clas and RomLing.			
<b>5061</b>	<b>The Global Mediterranean</b>	<b>U G</b>	<b>3</b>
This course examines the governments, societies, and cultures of the littoral states (empires/nations) of the Mediterranean Sea. We will pay attention to the 'East/West' paradigm as a prism through which to examine past and present events. Prereq: Not open to students with credit for CompStd 5061, Italian 5061, or NELC 5061. Cross-listed in CompStd and NELC.			
<b>7301</b>	<b>Teaching French and Italian at the College Level</b>	<b>G</b>	<b>3</b>
Methods and techniques for teaching French and Italian languages at the college level. Prereq: Graduate teaching associate in the Department of French and Italian, or permission of instructor. Not open to students with credit for French 7301 or Italian 7301.			
<b>7601</b>	<b>Introduction to Literary and Cultural Theory</b>	<b>G</b>	<b>3</b>
Tools for conducting research in literary and cultural studies; survey of major theoretical movements in literary and cultural criticism; practical experience in bibliography construction and research-paper writing. Prereq: Not open to students with credit for French 7601 or Italian 7601.			

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<b>8601</b>	<b>Theory and Practice</b>	<b>G</b>	<b>3</b>
Focus on one broad area of theory in French and Italian Studies each time offered; students read major theorists and write research paper using one or more of critical approaches studied. Repeatable to a maximum of 12 cr hrs.			
<b>8602</b>	<b>Comparative French and Italian Studies</b>	<b>G</b>	<b>3</b>
Focuses on a comparative aspect of French and Italian studies. Content varies. Prereq: Not open to students with credit for French 8602 or Italian 8602. Repeatable to a maximum of 12 cr hrs.			
<b>8899</b>	<b>Dissertation Workshop</b>	<b>G</b>	<b>1</b>
Faculty-led workshop in which Ph.D. candidates meet weekly to discuss and critique their current dissertation research. Required each semester for Ph.D. candidates, including the semester in which they defend the dissertation. Prereq: Ph.D. candidate in French or Italian. Repeatable to a maximum of 10 cr hrs.			

### General Studies

<b>1201.01T</b>	<b>College Orientation</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>1201.02T</b>	<b>College Orientation for Transfer Students</b>	<b>U</b>	<b>½</b>
Introduction to the advanced steps and opportunities for success in a life-long journey of becoming an educated person as you integrate into the University and ATI communities.			

### General Studies: Biology

<b>1200T</b>	<b>General Biology</b>	<b>U</b>	<b>4</b>
A basic course intended to provide a biological foundation, with supporting chemistry concepts, emphasizing principles and applications of biology. Prereq: Not open to students with credit for 120T or Biology 1113 (113). This course is available for EM credit.			
<b>1250T</b>	<b>General Botany with Applications</b>	<b>U</b>	<b>4</b>
Introduction to the fundamental structures and processes of plants, including plant anatomy, physiology, morphology, reproduction, and genetics. Prereq: Not open to students with credit for 125T or HCS 300 or PlntBio 300. This course is available for EM credit.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

### General Studies: Chemistry

<b>1100T</b>	<b>Introduction to General Chemistry</b>	<b>U</b>	<b>3</b>
Develops the basic concepts of atomic structure, bonding theory, molecular structure, chemical reactions, solutions, equilibrium, and acid-base chemistry. Prereq: GenMath 1040T or Math 1050 or Math placement level R or higher. Not open to students with credit for Chem 1110 or 1210. This course is available for EM credit.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

### General Studies: Communications Skills

<b>1201T</b>	<b>Exploring Agricultural Communication, Education and Leadership</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>2115T</b>	<b>Technical and Business Writing</b>	<b>U</b>	<b>3</b>
Principles of technical and business communication in the global setting with emphasis on practical applications for professional and business environments involving correct usage and documentation in writing, reading, speaking and listening. Prereq: English 1110.01 or 1110.03. Not open to students with credit for AgrComm 2367. This course is available for EM credit.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

### General Studies: Humanities

<b>1190.01T</b>	<b>Humanities as a Window on Cultural Pluralism: The Arts in Ghana</b>	<b>U</b>	<b>3</b>
An introduction to specific arts and cultural contexts of Ghana, West Africa, leading to a four-week study abroad, IntStds 5797. Prereq: Permission of instructor. Concur: IntStds 5797. Not open to students with credit for 190T.			
<b>1190.02T</b>	<b>Humanities as a Window on Cultural Pluralism: Global Arts</b>	<b>U</b>	<b>3</b>
An introduction to specific visual arts and cultural contexts of four societies: Japan, Ghana, France, USA. This course is available for EM credit.			
<b>2193T</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

### General Studies: Mathematics

<b>1030T</b>	<b>Basic Mathematics I</b>	<b>U</b>	<b>3</b>
A foundation course in arithmetic and beginning algebra skills. Emphasis is on obtaining competencies necessary to be successful in the Basic Mathematics II course. Prereq: Not open to students with credit for 1040T or 1140T.			
<b>1040T</b>	<b>Basic Mathematics II</b>	<b>U</b>	<b>3</b>
A review of algebra and geometry fundamentals with emphasis on measurement, percent application, two and three-dimensional geometry application, and direct and inverse proportion. Prereq: 1030T with a grade of C- or better, or Math placement Level S. Not open to students with credit for 1140T. This course is available for EM credit.			
<b>1141T</b>	<b>Business Mathematics</b>	<b>U</b>	<b>3</b>
The mathematics of business and finance: including proportion, the income statement, simple interest, compound interest, annuities, amortization and sinking funds. Prereq: 1040T or 1140T, or Math Placement Level R or higher. This course is available for EM credit.			
<b>1145T</b>	<b>Technical Mathematics</b>	<b>U</b>	<b>3</b>
A study of technical applications and computational methods involving variation, systems of equations, quadratic equations, graphical solutions to equations, logarithmic and exponential equations, and trigonometry. Prereq: 1040T or 1140T with a grade of C- or better, or Math Placement Level R or higher. This course is available for EM credit.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

### General Studies: Social Science

<b>1181T</b>	<b>Hispanic Culture and Language in the Workplace</b>	<b>U</b>	<b>3</b>
Develop an understanding of how various Latino cultures influence workplace issues in order to improve the working environment and learn a basic workplace Spanish vocabulary. Prereq: Not open to students with credit for 184T. This course is available for EM credit.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

### Geodetic Sciences

<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 6</b>
Group studies of a specified topic in geodetic sciences, geodesy, or geodynamics. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs or 20 completions for any combination of 5194 or 694.			
<b>5612</b>	<b>Introduction to Geodesy</b>	<b>U G</b>	<b>3</b>
The figure of the Earth: global geodetic observing system; reference frames and datums; satellite missions for Earth measurements; Earth's gravity field. Prereq: Math 1152 (153) or above, or permission of instructor. Not open to students with credit for 5660 (660), 6776 (776), or 6777 (777).			
<b>5636</b>	<b>Geovisualization Geometry: Map Projections and More</b>	<b>U G</b>	<b>4</b>
Principal map projections of the sphere, their distortions, properties, and usage. Evolution of geospatial visualization methods using computer graphics. Prereq: 2153 (254) or equiv. Not open to students with credit for GeodSciM 636.			

<b>5637</b>	<b>Topics in Mapping</b>	<b>U G</b>	<b>3</b>
A survey of developments in mapping and geographic information science of importance to geodetic scientists specializing in geodesy, geodynamics, spatial data acquisition technology, and mathematical and statistical methods. Prereq: 5636 (636), or permission of instructor. Not open to students with credit for GeodSciM 637.			
<b>5652</b>	<b>Adjustment Computations</b>	<b>U G</b>	<b>5</b>
Classification of errors; measures of dispersion; variance and covariance; propagation of errors; weights, observations, and normal equations; algorithms and examples, weighted and fixed constraints; statistical tests; error ellipses. Prereq: Math 1172, 2153, 2173 or 254 or equiv; and 2568, 4568, or 572 or equiv. Not open to students with credit for GeodSciM 650 or 651.			
<b>5660</b>	<b>Geometric Reference Systems</b>	<b>U G</b>	<b>4</b>
Geodetic and astronomic coordinates; ellipsoidal geometry; geodetic datums; terrestrial and celestial reference systems; reduction of celestial coordinates; polar motion; time systems. Prereq: Math 1172, 2153, 2173, or 254 or equiv; and Math 2568, 4568, or 572 or equiv. Not open to students with credit for 660.			
<b>5781</b>	<b>Geodesy and Geodynamics</b>	<b>U G</b>	<b>3</b>
Crustal motion geodesy, reference frame realization and station trajectory analysis, plate motion and Euler's theorem, earthquake deformation cycle, elastic and viscoelastic responses to surface loading, numerical methods. Prereq: Math 1152 (153), 2174, 2568, or 5601, or Physics 1251; or permission of instructor. Not open to students with credit for GeodSciM 781.			
<b>6193</b>	<b>Individual Studies in Geodetic Sciences</b>	<b>G</b>	<b>1 - 6</b>
Assigned readings, laboratory, or field work, under the guidance of a faculty member, arranged to meet the requirements of individual students. Prereq: Permission of instructor. Repeatable to a maximum of 40 credit hours for any combination of 6193 and 693. This course is graded S/U.			
<b>6776</b>	<b>Physical Geodesy</b>	<b>G</b>	<b>4</b>
The gravity field and its potential; the disturbing potential and its representation; applications and current methods. Prereq: 5660 (660), or permission of instructor. Not open to students with credit for GeodSciM 776.			
<b>6777</b>	<b>Satellite Geodesy</b>	<b>G</b>	<b>3</b>
Geometric and dynamic applications of artificial satellites in geodesy; determination of station positions and the gravity field of the Earth. Prereq or concur: 6776 (776) or equiv. Not open to students with credit for GeodSciM 777.			
<b>6786</b>	<b>Geospatial Data Structures for Computer Mapping and GIS</b>	<b>G</b>	<b>3</b>
Introduction to spatial data structures and algorithms for computer mapping; implementation of algorithms for domain-specific data structures using object-oriented programming languages. Prereq: CSE 2221 (222) or equiv, or permission of instructor. Not open to students with credit for GeodSciM 786.			
<b>7763</b>	<b>Advanced Adjustment Computations</b>	<b>G</b>	<b>4</b>
Large patterned systems, Gauss-Markoff model and mixed models; collocation and its robustification; generalized matrices in geodetic science; sequential algorithms; consistency checks; error ellipsoids; variance component estimation; Kalman filtering. Prereq: 5652 (651) or equiv. Not open to students with credit for GeodSciM 762.			
<b>7765</b>	<b>Analysis and Design of Geodetic Networks</b>	<b>G</b>	<b>2</b>
Geodetic network definition; invariant quantities; geodetic datum; measures of accuracy and reliability; model tests; outlier detection; network design; optimality criteria; introduction to geodetic deformation analyses. Prereq: 7763 (762) or equiv. Not open to students with credit for 765.			
<b>7837</b>	<b>Computational Cartography</b>	<b>G</b>	<b>4</b>
Computational techniques and computational complexity of various operations of digital mapping; special emphasis on classical and recent map generalization algorithms, presented to illustrate methods of computer cartography. Prereq: 6786 (786), or CSE 2331 or 680, or permission of instructor. Not open to students with credit for GeodSciM 837 or 838.			
<b>7875</b>	<b>Spectral Methods in Geodesy</b>	<b>G</b>	<b>3</b>
Spectral analysis theory and techniques in gravimetric geodesy; Fourier, Hankel, and Legendre transforms; convolutions, discrete techniques, correlation and power spectral density estimation and frequency-domain lsc. Prereq: Permission of instructor. Not open to students with credit for GeodSciM 875.			
<b>7998</b>	<b>Research in Geodetic Science</b>	<b>G</b>	<b>1 - 12</b>
Graduate-level research. Prereq: Grad standing in Geodetic or Earth Sciences. Repeatable. This course is graded S/U.			
<b>7999</b>	<b>Research for Thesis in the Geodetic Sciences</b>	<b>G</b>	<b>1 - 12</b>
Graduate-level research for thesis. Prereq: Grad standing in Geodetic or Earth Sciences. Repeatable. This course is graded S/U.			
<b>8785</b>	<b>Research Principles and Techniques</b>	<b>G</b>	<b>2 - 9</b>
Training for research in any area for which the student has appropriate preparation. Prereq: Permission of instructor. Repeatable to a maximum of 60 or hrs or 20 completions for any combination of 8785 or 885. This course is graded S/U.			

<b>8862</b>	<b>Adjustment Computations for Random Processes</b>	<b>G</b>	<b>2</b>
Random effects model, optimal and robust prediction, weak hypothesis testing, spatial processes, covariance function, variogram, homeogram, Kriging and alternative interpolators, quality measures. Prereq: 5652 (650) or equiv. Not open to students with credit for GeodSciM 862.			
<b>8871</b>	<b>Advanced Physical Geodesy</b>	<b>G</b>	<b>3</b>
Boundary-value problem; use of spherical harmonics; statistical application; appropriate representations; computations in space; combination of gravimetric and satellite data. Prereq: 7763, or 762 and 777 or equiv. Not open to students with credit for GeodSciM 871.			
<b>8873</b>	<b>Advanced Satellite Geodesy</b>	<b>G</b>	<b>3</b>
Dynamics of earth-orbiting satellites; equations of motion and their solutions; advanced data acquisition methods; analysis for the gravity field and station positions. Prereq: 7763 (763) and 6777 (777), or equiv. Not open to students with credit for GeodSciM 873.			
<b>8998</b>	<b>Research in Geodetic Science</b>	<b>G</b>	<b>1 - 12</b>
Graduate-level research. Prereq: Grad standing in Geodetic or Earth Sciences. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research in Geodetic Science</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation. Prereq: Grad standing in Geodetic or Earth Sciences. Repeatable. This course is graded S/U.			

## Geography

<b>1900</b>	<b>Extreme Weather and Climate</b>	<b>U</b>	<b>4</b>
Surveys characteristics and processes of Earth's atmosphere and how it interacts with the planet's surface, oceans, and human activity. The course focuses on how these interactions work to produce extreme weather events and climate extremes and how they affect people. Prereq: Not open to students with credit for 1900H (120H), 2960 (220), 5900 (520), 120, or AtmosSc 2940 (230). GE nat sci phys course.			
<b>1900H</b>	<b>Extreme Weather and Climate</b>	<b>U</b>	<b>4</b>
Surveys characteristics and processes of Earth's atmosphere and how it interacts with the planet's surface, oceans, and human activity. The course focuses on how these interactions work to produce extreme weather events and climate extremes and how they affect people. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 1900 (120), 120H, 2960 (220), 5900 (520), or AtmosSc 2940 (230). GE nat sci phys course.			
<b>2100</b>	<b>Human Geography</b>	<b>U</b>	<b>3</b>
Introduces students to the field of human geography; focus on real-world problems, such as migration, war, imperialism, environment, trade, conflict, inequality, and urbanization by applying key human geography concepts, such as place, space, scale, landscape, and territory. Prereq: Not open to students with credit for 205. GE soc sci indivs and groups course.			
<b>2193</b>	<b>Individual Studies in Geography</b>	<b>U</b>	<b>1 - 9</b>
Independent studies on selected Geography related topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Geography</b>	<b>U</b>	<b>1 - 3</b>
Special studies on topics directly related to Geography. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>2194H</b>	<b>Group Studies in Geography</b>	<b>U</b>	<b>1 - 3</b>
Special studies on topics directly related to Geography. Prereq: Honors standing or permission of instructor. Repeatable to a maximum of 15 or hrs of 5 completions.			
<b>2200.01</b>	<b>Mapping Our World</b>	<b>U</b>	<b>3</b>
Introduction to the power of maps, covering spatial representation, visual literacy, and geographic information technology in a global society. Prereq: Not open to students with credit for 2200.02 or 480. GE data anyl course.			
<b>2200.02</b>	<b>Mapping Our World</b>	<b>U</b>	<b>3</b>
Study abroad in Scandinavia. Introduction to the power of maps, covering spatial representation, visual literacy, and geographic information technology in a global society. Prereq: Permission of instructor. Not open to students with credit for 2200.01 or 480. GE data anyl course.			
<b>2400</b>	<b>Economic and Social Geography</b>	<b>U</b>	<b>3</b>
Geographic analysis of relationships between society and economy; focusing on such issues as globalization, production and consumption, inequality and social difference. Prereq: Not open to students with credit for 2400H. GE soc sci human, nat, and econ resources and diversity global studies course.			
<b>2400H</b>	<b>Economic and Social Geography</b>	<b>U</b>	<b>3</b>
Geographic analysis of relationships between society and economy; focusing on such issues as globalization, production and consumption, inequality and social difference. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 240 or 240H. GE soc sci human, nat, and econ resources and diversity global studies course. SS Admis Cond course.			

## 220 Geography

<b>2500</b>	<b>Cities and their Global Spaces</b>	<b>U</b>	<b>3</b>
Globalization and urbanization; urban economies, spaces, and societies; function, form, and pattern in developed and developing world cities. GE soc sci orgs and politics and diversity global studies course.			
<b>2750</b>	<b>World Regional Geography</b>	<b>U</b>	<b>3</b>
Develops students' knowledge of world geography through the twin concepts of region and globalization; focuses on culture, society, politics, economy, and interplay between people and environments. Prereq: Not open to students with credit for 200 or 2750H (200H). GE soc sci human, nat, and econ resources and diversity global studies course. SS Admis Cond course.			
<b>2750H</b>	<b>World Regional Geography</b>	<b>U</b>	<b>3</b>
Develops students' knowledge of world geography through the twin concepts of region and globalization; focuses on culture, society, politics, economy, and interplay between people and environments. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2750 (200) or 200H. GE soc sci human, nat, and econ resources and diversity global studies course. SS Admis Cond course.			
<b>2800</b>	<b>Our Global Environment</b>	<b>U</b>	<b>3</b>
Introduction to global environmental issues, including the interaction of physical and social factors in the causes of and strategies for ameliorating environmental problems. Prereq: Not open to students with credit for 1900 (120), 1900H (120H), 2960 (220), 2960H (220H), or 210. GE nat sci phys course.			
<b>2960</b>	<b>Introduction to Physical Geography</b>	<b>U</b>	<b>4</b>
The elements and processes of the natural environment, their characteristics, distribution, and implications in the human habitat. Prereq: Not open to students with credit for 1900 (120), 1900H (120H), 2800 (210), 2960H (220H), or 220. GE nat sci phys course. NS Admis Cond course.			
<b>2960H</b>	<b>Introduction to Physical Geography</b>	<b>U</b>	<b>4</b>
The elements and processes of the natural environment, their characteristics, distribution, and implications in the human habitat. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 220H, 1900 (120), 1900H (120H), 2960 (220), or 2800 (210). GE nat sci phys course. NS Admis Cond course.			
<b>3300</b>	<b>Transportation Security</b>	<b>U</b>	<b>3</b>
Geographic aspects of transportation security. Spatial analysis of transportation linkages. Relationships between transportation and spatial organization; selected analytical models dealing with threats to transportation security. Prereq: Not open to students with credit for 445.			
<b>3597.01</b>	<b>World Urbanization</b>	<b>U</b>	<b>3</b>
An examination of geographic aspects of the urbanization process in the world's major regions; interrelationships between urbanization and economic development. Prereq: Not open to students with credit for 3701 (450) or 597.01. GE cross-disciplinary seminar course.			
<b>3597.03</b>	<b>Environmental Citizenship</b>	<b>U</b>	<b>3</b>
Provides tools for environmental citizenship by teaching interdisciplinary perspectives on biophysical and sociocultural forces that shape environments. Addresses general processes through local case studies. Prereq: Not open to students with credit for 597 or English 3597 (597.03). GE cross-disciplinary seminar course. Cross-listed in English.			
<b>3600</b>	<b>Space, Power and Political Geography</b>	<b>U</b>	<b>3</b>
Political geographic thought; territory and territoriality; borders and scale; space, power and uneven development; states and statecraft; and the politics of nations, regions and localities. Prereq: Not open to students with credit for 460 or 460H. GE soc sci orgs and politics course.			
<b>3600H</b>	<b>Space, Power and Political Geography</b>	<b>U</b>	<b>3</b>
Political geographic thought; territory and territoriality; borders and scale; space, power and uneven development; states and statecraft; and the politics of nations, regions and localities. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 460 or 460H. GE soc sci orgs and politics course.			
<b>3701</b>	<b>The Making of the Modern World</b>	<b>U</b>	<b>3</b>
The geographies of modernity and their formation: the world market, the global polity, diasporas and constructing difference, colonialism, the transformation of nature, Eurocentricity, post-modernity. Prereq: Not open to students with credit for 450. GE soc sci orgs and politics and diversity global studies course.			
<b>3702</b>	<b>Life and Death Geographies: Global Population Dynamics</b>	<b>U</b>	<b>3</b>
Theories of population change; global and national contexts of fertility policy and reproductive health, morbidity and mortality trends; migration; environmental effects of population growth; urbanization. Prereq: Not open to students with credit for 470.			

<b>3750</b>	<b>Geography of North America</b>	<b>U</b>	<b>3</b>
Geographical analysis of North America; spatial patterns and processes associated with culture, politics, economy and social difference at international, national, regional and urban scales. Prereq: Not open to students with credit for 400. GE diversity soc div in the US course.			
<b>3751</b>	<b>Geography of Ohio</b>	<b>U</b>	<b>3</b>
An appraisal of geographic factors in the settlement and development of Ohio; an overview of the evolution of the Ohio economy. Prereq: Not open to students with credit for 401.			
<b>3753.02</b>	<b>Geography of the European Union</b>	<b>U</b>	<b>3</b>
Study abroad in Cyprus. Geographic factors in the economic, social, and political progress of European integration; major problems of the area in the light of their geographic background. Prereq: Permission of instructor. Not open to students with credit for 3753 (510) or 3753.01.			
<b>3800</b>	<b>Geographical Perspectives on Environment and Society</b>	<b>U</b>	<b>3</b>
Geographical understanding of interactions between society and environment; how historical and contemporary views of the environment influence people's actions toward the environment and other people. Prereq: Not open to students with credit for 430. GE soc sci human, nat, and econ resources course.			
<b>3801</b>	<b>Political Ecology</b>	<b>U</b>	<b>3</b>
Introduces students to a geographical school of nature-society thought. It situates PE in the hundred years of geographic thought on nature-society relations prior to PE's emergence in the 1970s, and follows how the field developed since then.			
<b>3900</b>	<b>Global Climate Change: Causes and Consequences</b>	<b>U</b>	<b>3</b>
Examines the natural and human factors that force changes in our climate and environment and explores strategies for a sustainable environment in the future. Prereq: Not open to students with credit for 3901H (410H) or 420. GE nat sci physical course.			
<b>3901H</b>	<b>Global Climate and Environmental Change</b>	<b>U</b>	<b>3</b>
Examines both natural and social factors that force changes in our climate and environment and explores strategies for a sustainable environment in the future. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 3900 (420) or 410H. GE nat sci phys and soc sci human, nat, and econ resources course.			
<b>3980</b>	<b>Biogeography: An Introduction to Life on Earth</b>	<b>U</b>	<b>3</b>
The patterns and processes responsible for the global distribution of Earth's flora and fauna; the inter-relationship between biota and soils; climate and topography will be emphasized. Prereq: Not open to students with credit for 490.			
<b>4100</b>	<b>Geographic Inquiry</b>	<b>U</b>	<b>3</b>
History of geographic thought; covers major advances and debates in theory and method, and outlines major contributions of geographic research. This is a capstone course for Geography majors in Environment & Society and Urban, Regional, and Global Studies specializations. Prereq: Not open to students with credit for 600.			
<b>4101</b>	<b>Undergraduate Research and Professionalization Seminar</b>	<b>U</b>	<b>3</b>
Course for geography majors that identifies key skills, concepts, and tools that characterize a geographer's training, and guides students in recognizing and articulating them. Explores trends and issues in the labor market relevant to geography-related careers. Introduces research skills, including generating, analyzing, and presenting geographic information. Prereq: 3 semester hours in Geog.			
<b>4103</b>	<b>Introductory Spatial Data Analysis</b>	<b>U</b>	<b>3</b>
An introduction to spatial data analysis in geography: the fundamental statistical and spatial analysis methods used in quantitative geographic research. Prereq: Math 1116 or 1130 or above, or Math Placement Level M or L, or permission of instructor. Not open to students with credit for 5100.			
<b>4191</b>	<b>Internship In Geography</b>	<b>U</b>	<b>1 - 6</b>
An opportunity for practical experience and on-the-job learning in a Geography-related work place. Prereq: 12 cr hrs in major program, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies in Geography</b>	<b>U</b>	<b>1 - 9</b>
Independent studies on selected Geography related topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Geography</b>	<b>U</b>	<b>1 - 3</b>
Special studies on topics directly related to Geography. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>4998</b>	<b>Undergraduate Research in Geography</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research on topics in Geography. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research in Geography</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research on topics in Geography Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			

<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 9</b>
A program of research which includes individual conferences and which culminates in a thesis. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 9</b>
A program of research which includes individual conferences and which culminates in an honors thesis and an oral defense. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>5103</b>	<b>Intermediate Spatial Data Analysis</b>	<b>U G</b>	<b>3</b>
An intermediate class in spatial data analysis for geography. This course focuses on multivariate model building and evaluation, with a special emphasis on multiple regression models commonly used by geographers: spatial regression, conditional autoregressive, and geographically weighted regression. Prereq: 4103 or introductory statistics course from Geography or other department. Not open to students with credit for 5100.			
<b>5193</b>	<b>Individual Studies in Geography</b>	<b>U G</b>	<b>1 - 15</b>
Independent studies on selected Geography related topics. Prereq: Permission of instructor. Repeatable to a maximum of 75 or hrs or 5 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in Geography</b>	<b>U G</b>	<b>1 - 3</b>
Special studies on topics directly related to Geography. Repeatable to a maximum of 15 or hrs or 5 completions.			
<b>5200</b>	<b>Cartography and Map Design</b>	<b>U G</b>	<b>3</b>
A study of the cartographic techniques of map compilation and design including generalization, symbolization, reproduction, and GIS-based mapping with an emphasis on thematic mapping. Prereq: Not open to students with credit for 5200S.			
<b>5200S</b>	<b>Cartography and Map Design</b>	<b>U G</b>	<b>3</b>
A study of the cartographic techniques of map compilation and design including generalization, symbolization, reproduction, and GIS-based mapping with an emphasis on thematic mapping. Prereq: Not open to students with credit for 5200 (580) or 580S. GE service learning course.			
<b>5201</b>	<b>GeoVisualization</b>	<b>U G</b>	<b>3</b>
Examination of issues, techniques and applications of analytic cartography, interactive maps and scientific visualization for exploring geographic data. Prereq: A grade of C- or above in 5200 or 5200S.			
<b>5210</b>	<b>Fundamentals of Geographic Information Systems</b>	<b>U G</b>	<b>3</b>
Basic principles of geographic and land information systems and their use in spatial analysis and information management. Prereq: Not open to students with credit for 5220, CRPlan 5001, or CivilEn 5001.			
<b>5212</b>	<b>Geospatial Databases for GIS</b>	<b>U G</b>	<b>3</b>
Focuses on designing, implementing, querying and managing spatial databases or persistent data stores where most entities have footprints in geographic space and time. This is critical for designing and implementing GIS for projects and organizations. It is also crucial for moving beyond GIS to the bigger world of geographic information services. Prereq: 5210 and CSE 1114; or permission of instructor.			
<b>5222</b>	<b>GIS Algorithms and Programming</b>	<b>U G</b>	<b>3</b>
The theory and algorithms underpinning today's GIS technology and the development of custom GIS applications using the Python programming language.			
<b>5223</b>	<b>Design and Implementation of GIS</b>	<b>U G</b>	<b>3</b>
Practice-oriented development, design, implementation and evaluation of spatial databases, with an emphasis on local problems. Prereq: A grade of C- or above in 5222, or permission of instructor.			
<b>5225</b>	<b>Geographic Applications of Remote Sensing</b>	<b>U G</b>	<b>3</b>
Introduction to the fundamental principles, methods, and geographic applications of remote sensing. Prereq: Not open to students with credit for 5270.			
<b>5226</b>	<b>Spatial Simulation and Modeling in GIS</b>	<b>U G</b>	<b>3</b>
Fundamental modeling and simulation techniques in GIS, including cellular automata, diffusion models, and agent-based models, and their applications in social, environmental, and natural resources research. Prereq: Not open to students with credit for 5221 or 685.			
<b>5229</b>	<b>Emerging Topics in GIS</b>	<b>U G</b>	<b>3</b>
Examination of major recent developments in the theories, technologies, and/or applications of geographical information science. Prereq: A grade of C- or above in 5210. Not open to students with credit for 5224. Repeatable to a maximum of 15 or hrs.			
<b>5300</b>	<b>Geography of Transportation</b>	<b>U G</b>	<b>3</b>
Relation between transportation and spatial organization; selected analytical models dealing with traffic demand, network configuration, and allocation of transport facilities; application to selected problems. Prereq: Not open to students with credit for 645.			

<b>5301</b>	<b>Sustainable Transportation</b>	<b>U G</b>	<b>3</b>
Sustainable transportation generates accessibility while minimizing harm to people and the natural environment. This course examines the problems associated with transportation, including climate change, air quality, non-renewable resources, safety, congestion and social equity. We will also examine solutions to these problems, including pricing, planning, policy and technology.			
<b>5401</b>	<b>Economies, Space, and Society</b>	<b>U G</b>	<b>3</b>
A theoretical and substantive examination of economic geography; the interface of the economy with society, politics, and culture; and multiple expressions of capitalism. Prereq: Not open to students with credit for 640.			
<b>5402</b>	<b>Land Use Geography</b>	<b>U G</b>	<b>3</b>
Causes and consequences of recent regional and national land-use changes; urban decentralization, suburbanization of jobs and people; changing relationships between economic activity and the environment.			
<b>5501</b>	<b>Urban Spaces in the Global Economy</b>	<b>U G</b>	<b>3</b>
An examination of social, economic, cultural and political processes that produce urban space in local, national and global terms. Prereq: Not open to students with credit for 650.			
<b>5502</b>	<b>The Smart Neoliberal City</b>	<b>U G</b>	<b>3</b>
Neoliberal governance of cities affecting cultural, civic, and environmental politics; urban geographies of difference; politics and social economy of global cities; the uneven landscape of access and opportunity; shadow governance; and the built form.			
<b>5503</b>	<b>Urban China: Space, Place and Urban Transformation</b>	<b>U G</b>	<b>3</b>
Examines geography of China's urban transformations since 1911. Topics include: politics of urban design, political economy of land development, place-making projects, suburbanization, and consumption and spectacle.			
<b>5601</b>	<b>Geographies of Governmentalities</b>	<b>U G</b>	<b>3</b>
Governance and society from a geographic perspective using Foucault's governmentality framework. GE soc sci orgs and politics course.			
<b>5602</b>	<b>Conflict, Power &amp; Politics in the City</b>	<b>U G</b>	<b>3</b>
The changing politics of space in cities: class, neighborhood, and workplace in the industrial and the post-industrial city. Prereq: Not open to students with credit for 660.			
<b>5700</b>	<b>Geography of Development</b>	<b>U G</b>	<b>3</b>
Political economy of development; development theory; the historical geography of capitalist development; and contemporary development practices and strategies. Prereq: Not open to students with credit for 642.			
<b>5751</b>	<b>New Worlds of Latin America</b>	<b>U G</b>	<b>3</b>
Exploration of ongoing debates about achieving socially equitable and environmentally sustainable change in Latin America; emphasizes case studies and personal narratives from the lowland tropics. Prereq: Not open to students with credit for 605.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions.			
<b>5801</b>	<b>Environmental Conservation</b>	<b>U G</b>	<b>3</b>
Conservation of nature; nature-society theory; conflicts around environmental change and contemporary conservation programs and strategies. Prereq: Not open to students with credit for 630.			
<b>5802</b>	<b>Globalization and Environment</b>	<b>U G</b>	<b>3</b>
Transnational dimensions of changes to the natural environment; ways that global economic activity, international institutions, and global environmentalism contribute to environmental problems and solutions. Prereq: Not open to students with credit for 635.			
<b>5803</b>	<b>Sustainable Energy Geographies</b>	<b>U G</b>	<b>3</b>
Sustainable development; Energy systems; Energy production, consumption, and conservation; Environmental and societal impacts.			
<b>5900</b>	<b>Weather, Climate, and Global Warming</b>	<b>U G</b>	<b>3</b>
An introduction to the fundamental physical and mathematical principles governing both day-to-day weather and the average of weather, or climate. Objectives are to understand the physical processes of the earth-atmosphere system, describe its weather features and climate characteristics today, and outline how they might change in the future as a result of global warming. Prereq: Not open to students with credit for 520 or AtmosSc 2940 (230).			
<b>5921</b>	<b>Microclimatology: Boundary Layer Climatology</b>	<b>U G</b>	<b>3</b>
Theory of exchanges of energy and mass at the Earth-atmosphere interface as it relates to microclimates with particular emphasis upon radiation and climate. Prereq: A grade of C- or above in 5900 or AtmosSc 2940, or permission of instructor; and Physics 1250.			

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<b>5922</b>	<b>Microclimatology: Microclimatological Measurements</b>	<b>U G</b>	<b>3</b>
Practical experience in the fabrication of instruments, deployment of measurement systems in the field, and recording of data related to microclimates. Prereq: A grade of C- or above in 5921.			
<b>5940</b>	<b>Synoptic Meteorology Laboratory</b>	<b>U G</b>	<b>2</b>
Introduction to reading and interpretation of synoptic weather maps and diagrams- and data-communications systems. Prereq: 5900 (520) or AtmosSc 230 or 2940 (230) or permission of instructor; and Physics 132 or its successor. Not open to students with credit for 620 or AtmosSc 620 or AtmosSc 5940. Cross-listed in AtmosSc.			
<b>5941</b>	<b>Synoptic Meteorology: Synoptic Analysis and Forecasting</b>	<b>U G</b>	<b>3</b>
Physical processes associated with large-scale mid-latitude weather systems and the theory and practice of forecasting their weather and impacts. Prereq: Math 2153, and a grade of C- or above in Geog 5940 or AtmosSc 5940.			
<b>5942</b>	<b>Synoptic Meteorology: Severe Storm Forecasting</b>	<b>U G</b>	<b>3</b>
Physical processes associated with mesoscale weather systems from thunderstorms to tornadoes and the theory and practice of forecasting their weather and impacts. Prereq: A grade of C- or above in 5941.			
<b>6020</b>	<b>Foundations of Data-Driven Sustainable Energy Systems</b>	<b>G</b>	<b>3</b>
Introduction to issues impacting sustainable energy systems across technology, law and policy, business models, resilience, data, geospatial, and decision sciences. Prereq: Enrollment in Data-Driven Sustainable Energy Systems Graduate Interdisciplinary Specialization, or permission of instructor. Not open to students with credit for AEDEcon 6500, EnvEng 6020, FABEng 6020, ISE 6020, or PubAfrs 6020. Cross-listed in AEDEcon 6500, EnvEng 6020, FABEng 6020, ISE 6020, and PubAfrs 6020.			
<b>6299</b>	<b>GIS Capstone Project</b>	<b>G</b>	<b>3</b>
The purpose of this course is for students to showcase the knowledge learned and skills developed in the GIS graduate program.			
<b>7101</b>	<b>Research Design</b>	<b>G</b>	<b>3</b>
Introduction to research procedures, problem formulation, and application of research techniques in geography. Prereq: Grad standing in Geog, or permission of instructor. Not open to students with credit for 795.			
<b>7102</b>	<b>Fieldwork in Human Geography</b>	<b>G</b>	<b>3</b>
Methods for generating and interpreting field data; contested history and ethical challenges of fieldwork in human geography. Prereq: Not open to students with credit for 800.01 or 870.01.			
<b>7193</b>	<b>Individual Studies in Geography</b>	<b>G</b>	<b>1 - 15</b>
Independent studies on selected Geography related topics. Prereq: Permission of instructor. Repeatable to a maximum of 75 cr hrs or 5 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Geography</b>	<b>G</b>	<b>1 - 3</b>
Special studies on topics directly related to Geography. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 9</b>
Thesis Research. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>8100</b>	<b>Development of Geographic Thought</b>	<b>G</b>	<b>3</b>
The evolution of concepts concerning the nature, scope, and methodology of geography; present focus and trends as reflected in current literature. Prereq: Not open to students with credit for 882.			
<b>8102</b>	<b>Advanced Spatial Data Analysis</b>	<b>G</b>	<b>3</b>
Application of quantitative methods to geographic problems; spatial statistics, area sampling, maps of residuals, regionalization methods, and simulation maps. Prereq: 5100. Not open to students with credit for 883.02.			
<b>8104</b>	<b>Special Topics in Quantitative Geography</b>	<b>G</b>	<b>3</b>
Applications of advanced mathematical and statistical models to problems in geographical analysis. Prereq: 8102 or 883.01 or 883.02. Repeatable to a maximum of 15 cr hrs.			
<b>8109</b>	<b>Graduate Student Professionalization</b>	<b>G</b>	<b>3</b>
Introduction to professional experience for graduate students. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>8200</b>	<b>Frontiers in Geographic Information Science</b>	<b>G</b>	<b>3</b>
Readings and research in geographic information science. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8400</b>	<b>Issues in Critical Human Geography</b>	<b>G</b>	<b>3</b>
Course engages a variety of theoretical and epistemological issues in critical human geography. Specific topics vary. Repeatable to a maximum of 15 cr hrs or 5 completions.			

<b>8502</b>	<b>Seminar in Urban Geography: Urban Systems Analysis</b>	<b>G</b>	<b>3</b>
The development of theory in urban geography and its application to selected problems in urban systems analysis. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8601</b>	<b>Seminar: Theory of Political Geography</b>	<b>G</b>	<b>3</b>
The development of theory in political geography and its application to selected problems. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8901</b>	<b>Seminar: Problems in Climatology</b>	<b>G</b>	<b>3</b>
Problems in climatology. Repeatable to a maximum of 15 cr hrs.			
<b>8902</b>	<b>Applied Climatology</b>	<b>G</b>	<b>3</b>
Analysis of climatic and environmental change on various time scales; human impact on climate; theory and application of long-range and climate forecasting. Prereq: 5941 (623.01) or permission of instructor. Not open to students with credit for 823.			
<b>8960</b>	<b>Seminar: Special Problems in Physical Geography</b>	<b>G</b>	<b>3</b>
Special problems in physical geography. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.			
<b>8999</b>	<b>Research in Geography: Dissertation</b>	<b>G</b>	<b>1 - 9</b>
Research for dissertation purposes only. Repeatable to a maximum of 75 cr hrs or 5 completions. This course is graded S/U.			

## German

<b>1101.01</b>	<b>German I</b>	<b>U</b>	<b>4</b>
Introduction to language and culture of the German-speaking world, with emphasis placed on the acquisition of basic communication skills in cultural context. CEFR Levels A1/A2. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with 2 or more years of study in this language in high school, except by permission of instructor. Prereq: Not open to students with credit for 1101.51. This course is available for EM credit. GE for lang course.			
<b>1101.51</b>	<b>German I - Variable-Credit</b>	<b>U</b>	<b>1 - 4</b>
German 1101.01 content in variable-credit format for independent learners of German. CEFR Levels A1/A2. Progress is sequential from 1 cr hr to the next, with proficiency at the level of 80% required for advancement. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with 2 or more years of study in high school, except with permission of instructor. Prereq: Not open to students with credit for 1101.01. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.			
<b>1101.61</b>	<b>Beginning German I (Variable-Credit Distance Learning)</b>	<b>U</b>	<b>1 - 4</b>
German 1101.61 is an online version of German 1101. This course allows students to work through the first of Ohio State's 3-course introductory German sequence in a variable-credit Distance-Learning format. Students will learn to write, read, listen to and speak German, completing work independently with materials and instructor support. Prereq: Not open to students with credit for 1101.01 or 1101.51. Repeatable to a maximum of 4 cr hrs. This course is available for EM credit. GE for lang course.			
<b>1102.01</b>	<b>German II</b>	<b>U</b>	<b>4</b>
Continued development of German-language skills and cultural knowledge for effective communication. Emphasis on more advanced language structures, sustained interactions, reading and writing. CEFR Levels A2/B1. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1101.01, or 4 sem cr hrs of 1101.51, or concur: 1101.01, or 1101.51; or permission of instructor. Not open to students with credit for 1102.51. This course is available for EM credit. GE for lang course.			
<b>1102.51</b>	<b>German II - Variable-Credit</b>	<b>U</b>	<b>1 - 4</b>
German 1102.01 content in variable-credit format for independent learners of German. CEFR Levels A2/B1. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1101.01, or 4 cr hrs of 1101.51; or concur: 1101.01, or 1101.51; or permission of instructor. Not open to students with credit for 1102.01. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.			
<b>1102.61</b>	<b>Beginning German II (Variable-Credit Distance Learning)</b>	<b>U</b>	<b>1 - 4</b>
German 1102.61 is an online version of German 1102. This course allows students to work through the second of Ohio State's 3-course introductory German sequence in a variable-credit Distance-Learning format. Students will learn to write, read, listen to and speak German, completing work independently with materials and instructor support. Prereq: 1101.01, 1101.51, or 1101.61. Not open to students with credit for 1102.01 or 1102.51. Repeatable to a maximum of 4 cr hrs. This course is available for EM credit. GE for lang course.			



<b>1103.01</b>	<b>German III</b>	<b>U</b>	<b>4</b>
Development of skills for independent use of German. Discussions, presentations, writing & listening/viewing activities that address topics of the contemporary German-speaking world. CEFR Level B1. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1102.01, or 4 sem cr hrs of 1102.51, or 1266, or concur: 1102.01, or 1102.51, or permission of instructor. Not open to students with credit for 1103.51. This course is available for EM credit. GE for lang course.			
<b>1103.51</b>	<b>German III - Variable-Credit</b>	<b>U</b>	<b>1 - 4</b>
German 1103.01 content in variable-credit format for independent learners of German. CEFR Level B2. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1102.01 or 1266, or 4 cr hrs of 1102.51; or concur: 1102.01, 1102.51, or 1266; or permission of instructor. Not open to students with credit for 1103.01. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.			
<b>1103.61</b>	<b>Beginning German III (Variable-Credit Distance Learning)</b>	<b>U</b>	<b>1 - 4</b>
German 1103.61 is an online version of German 1103. This course allows students to work through the third of Ohio State's 3-course introductory German sequence in a variable-credit Distance-Learning format. Students will learn to write, read, listen to and speak German, completing work independently with materials and instructor support. Prereq: 1102.01, 1102.51, or 1102.61. Not open to students with credit for 1103.01 or 1103.51. Repeatable to a maximum of 4 cr hrs. This course is available for EM credit. GE for lang course.			
<b>2101</b>	<b>Texts and Contexts I: Contemporary German Language, Culture and Society</b>	<b>U</b>	<b>3</b>
Development of communication skills and knowledge about recent social, cultural, and political developments in German speaking countries through texts, media and film; CEFR level A2/B1. Closed to native speakers of this language. Prereq: 1103 or 1103.51, or equiv, or permission of instructor. No audit. FL Admis Cond course.			
<b>2102</b>	<b>Texts and Contexts II: 20th-Century German Language, History and Culture</b>	<b>U</b>	<b>3</b>
Continued development of communication skills; gain an understanding of major social and cultural developments in 20th century German history through texts, media, film. CEFR level B1. Prereq: 2101 or equiv, or permission of instructor. FL Admis Cond course.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 4</b>
Individual investigation of minor problems in German language and literature. Prereq: Permission of Chairperson. Repeatable to a maximum of 16 cr hrs or 4 completions. This course is progress graded (S/U).			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 15</b>
Investigation of minor problems in German literature and language. Prereq: Permission of Chairperson. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>2250</b>	<b>Berlin: Stories, Languages, and Ideas</b>	<b>U</b>	<b>3</b>
The roles Berlin played in Europe's and the world's major upheavals, from the Thirty Years' War to the Fall of the Wall in 1990, and insight into the increasing internationalization of Berlin from three perspectives: stories told by and about Berlin's citizens; philosophical & scientific ideas generated in Berlin; and multilingual dialects and variations. GE lit and diversity global studies course.			
<b>2251</b>	<b>German Literature and Popular Culture</b>	<b>U</b>	<b>3</b>
Study of popular culture forms in relation to the artistic, intellectual, historic, and literary traditions of the German-speaking world. Taught in English. Repeatable to a maximum of 9 cr hrs. GE lit course.			
<b>2253</b>	<b>Magic, Murder and Mayhem</b>	<b>U</b>	<b>3</b>
Origins and highlights of German culture and life to 1648 as reflected in literary and poetic works, Germanic mythology, religion, and the arts. Prereq: Not open to students with credit for 291. GE lit and diversity global studies course.			
<b>2254</b>	<b>Grimms' Fairy Tales and their Afterlives</b>	<b>U</b>	<b>3</b>
Working to understand the meaning and the enduring appeal of one of Germany's greatest successes in the realm of cultural exportation - the Grimms' fairy tales, a book whose circulation figures are exceeded in Western culture only by those of the Bible. To explore their reach, we will also compare them to their adaptations in literature and film, from dark to Disney. GE lit course.			
<b>2255</b>	<b>Postwar Culture in Germany and Japan</b>	<b>U</b>	<b>3</b>
This course will examine postwar culture in Germany and Japan, looking at films, theoretical texts, memoirs, manifestos, and literary works, subjecting our material to cross-cultural analysis that should deepen as our basis for comparison expands. Team-taught with faculty in Japanese. Prereq: Not open to students with credit for Japanese 2255. Cross-listed in Japanese. GE cultures and ideas course.			

<b>2256</b>	<b>Fan Fiction: From Homer to Harry Potter</b>	<b>U</b>	<b>3</b>
Enthusiastic readers of Harry Potter write sequels, prequels, and spinoffs and post them online every day. But writing fan fiction is far from new. In this course, we will investigate the surprising history of this literary form. We'll analyze works of fan fiction, asking how ideas of originality, authorship, and intellectual property influence art and literature. GE lit course			
<b>2310</b>	<b>Nature in Nordic and German Literatures</b>	<b>U</b>	<b>3</b>
This course explores how literature and culture are deeply intertwined with our relationship toward nature. The focus of this exploration is the literature, culture, and history of Nordic and German-speaking countries, from the medieval period to the present. Taught in English. Prereq: Not open to students with credit for Scandvn 2310. GE lit course. Cross-listed in Scandvn.			
<b>2350</b>	<b>Introduction to German Studies</b>	<b>U</b>	<b>3</b>
Overview of the development of German cultures, history, ideas, and art from the Middle Ages to the present in a transnational context. An ideal course for students considering a major or minor in German or for those with a general interest in German culture. Introductions to analytical methods also provide students with tools for analyzing everything from medieval sagas to television shows. GE cultures and ideas course.			
<b>2352</b>	<b>Development of Contemporary Germany: Dresden Yesterday and Today</b>	<b>U</b>	<b>3</b>
Introduction to German life and culture, past and present, including the new federal states; taught within summer study abroad program with students experiencing German culture first hand. Prereq: 1102 or 1102.51. Not open to students with credit for 275. GE cultures and ideas and diversity global studies course. FL Admis Cond course.			
<b>2367</b>	<b>German Literature and American Culture</b>	<b>U</b>	<b>3</b>
German perspectives on and in 20th-century American culture. Influence of German thought and writings on American culture; German views of American culture. Taught in English. Prereq: English 1110.01, 1110.02, and 1110.03 or equiv. Not open to students with credit for 367. GE writing and comm course: level 2. EN Admis Cond course.			
<b>2451</b>	<b>Hollywood: Exiles &amp; Emigres</b>	<b>U</b>	<b>3</b>
German cinema has played an influential role in the development of international film genres. In this class we look at examples of films made in Hollywood that bear the stamp of German influence. We also look at films made in Germany that show that influence flows in both directions. This course assumes no prior knowledge of German, German films, or film theory in general. Taught in English. Prereq: Not open to students with credit for 671. GE VPA course.			
<b>2798.02</b>	<b>Berlin, Then and Now: People, Places, and Experiences</b>	<b>U</b>	<b>3</b>
Students will explore and experience the cosmopolitan and increasingly diverse Berlin by learning about some of the most influential or memorable persons who live or have lived in the city-from its establishment as a capital of the Prussian Kingdom in the 18th century to its present role as capital of a reunified, democratic Germany and a center of European and global politics and culture. GE diversity global studies and education abroad course.			
<b>3101</b>	<b>Texts and Contexts III: Historical Perspectives</b>	<b>U</b>	<b>3</b>
Development of intermediate/advanced communication skills; broadening of cultural and historical knowledge through interaction with literary and non-literary materials informed by historical perspective; CEFR level B1/B2. Prereq: 2102 or equiv, or permission of instructor. FL Admis Cond course.			
<b>3102</b>	<b>News and Views: Conversations about Current Issues in the German-Speaking World</b>	<b>U</b>	<b>3</b>
This course will inform students about events, issues, and trends in the German-speaking world today, and improve their German language skills. Students will expand their ability to gather information about current events from German-language sources (print, audio, and video); to summarize and analyze these sources; and to speak and write formally and informally about current events. Prereq: 2102 or equiv., or permission of instructor.			
<b>3200</b>	<b>Topics in German Literature, Art and Film</b>	<b>U</b>	<b>3</b>
Focused exploration of topics in German literature, art, and film as expressions of culture in a transnational context, aimed at improving students' critical comprehension and communication skills. Prereq: 2102 or equiv, or permission of instructor. Repeatable to a maximum of 6 cr hrs. Admis Cond course.			
<b>3252.01</b>	<b>The Holocaust in German Literature and Film</b>	<b>U</b>	<b>3</b>
Reading, analysis, and discussion of representative works pertaining to the Holocaust from the perspective of German literature and film. Taught in English. Prereq: Not open to students with credit for 3252.02 or Yiddish 3399. GE lit and diversity global studies course.			
<b>3252.02</b>	<b>The Holocaust in German Literature and Film</b>	<b>U</b>	<b>3</b>
German 3252.02 is an online version of German 3252.01. Reading, analysis, and discussion of representative works pertaining to the Holocaust from the perspective of German literature and film. Taught in English. Prereq: Not open to students with credit for 3252.01. GE lit and diversity global studies course.			

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<b>3254H</b>	<b>Representations and Memory of the Holocaust in Film</b>	<b>U</b>	<b>3</b>
Students will view, discuss, and examine major filmic representations of the Holocaust from several countries from the 1940s through the 1990s. Students will learn how these films have contributed to our understanding of a complex phenomenon of WWII and how the directors have coped with the thorny issues of representing something that many people consider to be unrepresentable. Taught in English. Prereq: Honors, and Soph, Jr, or Sr standing, or permission of instructor. GE VPA and diversity global studies course.			
<b>3256</b>	<b>Coming to Terms with the Holocaust and War in Germany: Vergangenheitsbewältigung</b>	<b>U</b>	<b>3</b>
Dedicated to examining how postwar Germans came to terms with war and the Holocaust by looking at various responses in several genres, from philosophy and public debates to poems and films. Students will be confronted with difficult historical, aesthetic, and ethical issues in the various German responses to the Holocaust. Taught in English. GE cultures and ideas course.			
<b>3300</b>	<b>Topics in German Culture Studies, Social and Intellectual History</b>	<b>U</b>	<b>3</b>
Focused exploration of topics in the development of German-language culture and intellectual history. Content geared toward improving students' critical comprehension and communication skills in German. Prereq: 2102 or equiv; or permission of instructor. Repeatable to a maximum of 6 cr hrs. Admis Cond course.			
<b>3351</b>	<b>Democracy, Fascism and German Culture</b>	<b>U</b>	<b>3</b>
Culture of the Weimar Republic and Nazi Germany in literature, film, the other arts; the roots of fascism and its echoes in postwar Germany. Taught in English. Prereq: Not open to students with credit for 299. GE cultures and ideas and diversity global studies course.			
<b>3353H</b>	<b>German Intellectual History: Marx, Nietzsche, and Freud</b>	<b>U</b>	<b>3</b>
Marx, Nietzsche, and Freud are essential for understanding intellectual thought in the late nineteenth and twentieth century. They have retained their importance into the twenty-first century. The focus of the course will be the way in which Marx, Nietzsche, and Freud reconceived the notion of history, historical progress, and historiography. Prereq: Honors standing. GE cultures and ideas course.			
<b>3600</b>	<b>Topics in German Linguistics/Language</b>	<b>U</b>	<b>3</b>
Understanding the German language in its historical development, standardization and its contemporary manifestations. Systematic overview of German phonetics, phonology, morphology, syntax, and varieties of modern German. Prereq: 2102 or equiv, or permission of instructor. Repeatable to a maximum of 6 cr hrs. FL Admis Cond course.			
<b>3602</b>	<b>German for the Professions I</b>	<b>U</b>	<b>3</b>
Development of cultural knowledge and communication skills for the professions; introduction to the world of German business through audio, video, print materials; CEFR level B1-B2. Prereq: 2102 or equiv, or permission of instructor. Not open to students with credit for 202. No audit. Admis Cond course.			
<b>3603</b>	<b>Translation I</b>	<b>U</b>	<b>3</b>
German-English/English-German translation; focus on everyday language; emphasis on improvement of grammar and development of vocabulary; discussion of common translation techniques, introduction to theories of translation. Prereq: 2102 or equiv, or permission of instructor. Not open to students with credit for 303. Admis Cond course.			
<b>4191</b>	<b>Internship in German</b>	<b>U</b>	<b>3 - 6</b>
Supervised internship arranged and approved in advance with the faculty advisor. Notify the chair no later than 6 months before the start of the internship. Prereq: 3000-level German course, or permission of instructor. Not open to students with credit for HumCol 489. This course is graded S/U.			
<b>4194</b>	<b>Undergraduate Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Investigation of minor problems in the various fields of German literature and philology. Prereq: Permission of chairperson. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>4200</b>	<b>Senior Seminar in German: Literature, Art and Film (German)</b>	<b>U</b>	<b>3</b>
Focused exploration of topics in German literature, art, and film as cultural expressions within transnational contexts, to improve students' historical knowledge, skills for exploring cultural and critical-intellectual traditions. Taught in German. Counts toward fulfillment of advanced requirement for the major. Prereq: 3101, and one course at the 3000 level, and Sr standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4300</b>	<b>Senior Seminar in German: Culture Studies, Social and Intellectual History (German)</b>	<b>U</b>	<b>3</b>
Exploration of topics in German intellectual history and the history and theory of German culture. Taught in German. Counts toward fulfillment of advanced requirement for the major. Prereq: 3101, and one course at the 3000 level, and Sr standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs. FL Admis Cond course.			

<b>4600</b>	<b>Senior Seminar in German: Linguistics/Language (German)</b>	<b>U</b>	<b>3</b>
Seminar on aspects of the German language. Variable topics may include: structure, history, and variation of the German language; studies of German language acquisition; methods of the field of Germanic Linguistics and Philology. Taught in German. Prereq: 3101, 3600, or equiv, and Sr standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs. FL Admis Cond course.			
<b>4602</b>	<b>German for the Professions II</b>	<b>U</b>	<b>3</b>
Continued development of cultural knowledge and communication skills in German; study of business trends, traditions, and structures through audio, video, print materials; CEFR level B1-B2. Prereq: 3602 or equiv, or permission of instructor. Not open to students with credit for 302. FL Admis Cond course.			
<b>4603</b>	<b>Translation II</b>	<b>U</b>	<b>3</b>
German-English/English-German translation; focus on literary language; emphasis on improvement of style; discussion of major theories of translation. Prereq: 2102 and 3603, or equiv, or permission of instructor. FL Admis Cond course.			
<b>4998</b>	<b>Undergraduate Research Projects</b>	<b>U</b>	<b>1 - 3</b>
Investigation of problems in various fields of Germanic studies. Prereq: Permission of adviser or Graduate Studies Committee chair as applicable. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is progress graded (S/U).			
<b>4998H</b>	<b>Honors Undergraduate Research Projects</b>	<b>U</b>	<b>1 - 9</b>
Investigation of problems in various fields of Germanic studies. Prereq: Honors standing and signature of honors advisor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is progress graded (S/U).			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 4</b>
Research for undergraduate thesis. Prereq: Permission of undergraduate thesis advisor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 4</b>
Research for Honors Undergraduate research thesis. Prereq: Honors standing, permission of instructor, and required signature of undergraduate Honors Thesis advisor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Independent Studies for Advanced Students</b>	<b>U G</b>	<b>1 - 3</b>
Independent investigation of issues in various fields of Germanic Studies. Prereq: Permission of Director of Undergraduate Studies or the Director of Graduate Studies, as applicable. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Investigation of minor problems in the various fields of German literature and philology. Prereq: Permission of chairperson. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5797</b>	<b>Study at a Foreign Institute</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of chairperson. Repeatable to a maximum of 27 cr hrs or 9 completions. This course is progress graded (S/U).			
<b>6101</b>	<b>Basic German for Graduate Students</b>	<b>G</b>	<b>3</b>
The fundamentals of German grammar, as required for the reading of German texts in the sciences, social sciences, and humanities. No audit. Credit does not apply to the minimum hours required for the master's or doctoral degrees. Prereq: Grad standing. Not open to students with credit for 571.			
<b>6193</b>	<b>Independent Studies for Master's Students</b>	<b>G</b>	<b>1 - 8</b>
Independent investigation of issues in German literature, culture, intellectual history, and linguistics. Prereq: Permission of the instructor and Director of Graduate Studies. Repeatable. This course is graded S/U.			
<b>6200</b>	<b>Introduction to German Literary History and Analysis</b>	<b>G</b>	<b>3</b>
Lecture-based introduction to the methodology and tools of literary scholarship and to major contemporary theoretical approaches to literary studies; contextualization of these methodologies and approaches within literary history. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 702.			
<b>6300</b>	<b>Introduction to Intellectual History and Cultural Studies</b>	<b>G</b>	<b>3</b>
Graduate introduction to important figures, topics, and periods within German intellectual history. Interactions with the larger European context of intellectual history and with other cultural spheres in Germany. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 703.			
<b>6400</b>	<b>Introduction to German Film</b>	<b>G</b>	<b>3</b>
Graduate introduction to German arts concentrating on moving images and non-text-based forms. Overview of visual-aesthetic movements and film history since 1900 in context. Fundamentals of analysis for film and visual media. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 672.			

**6600 Introduction to Teaching and Learning German at the College Level** G 4

Developing an understanding of communicative language teaching and second language acquisition as it applies to German. Overview of instructional strategies and techniques for various modalities.

Prereq: Open to Graduate Teaching Associates enrolled in the Department of Germanic Languages and Literatures; all others by permission of instructor. Not open to students with credit for 840.

**6601 Teaching Practicum** G 1

This course is for GTAs who are teaching a 1000-level German language class. The course provides graduate students with instruction and practice in designing and implementing instructional materials for their undergraduate classes. It offers best practices in creating tests, developing speaking portfolios, designing culture components, and becoming reflective practitioners.

Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**6700 Introduction to the Language Sciences** G 3

Provides students with a general overview of linguistics and surveys the areas covered by the specialization: Language and Cognition, Language and Brain Function, Language and Society, Language and Technology, and Language Description and Fieldwork. Guest faculty will present in their areas of expertise and students will read and prepare assignments in multiple areas.

Prereq: Not open to students with credit for Psych 6700. Cross-listed in Psych.

**6999 Master's Research** G 1 - 6

Research for the Master's Assessment.

Prereq: Permission of the master's advisor and Director of Graduate Studies. Repeatable to a maximum of 24 cr hrs or 4 completions. This course is graded S/U.

**8193 Independent Studies for Doctoral Students** G 1 - 12

Research for the doctoral candidacy examination.

Prereq: Permission of the doctoral advisor and Director of Graduate Studies. Repeatable. This course is graded S/U.

**8200 Seminar in Literature and Literary Culture** G 3

Topics vary in focus and methodology; emphasis may range from individual authors, periods, or themes to theoretical and interdisciplinary issues; research paper. 3-hr cl.

Prereq: 6200, or Grad standing, or permission of instructor. Repeatable to a maximum of 30 cr hrs. Admis Cond course.

**8300 Seminar in Intellectual History and Cultural Studies** G 3

Concepts, representations, and institutions of German culture in an international context; German intellectual history; theories of literature, arts, and culture.

Prereq: 6200, or Grad standing, or permission of instructor. Repeatable to a maximum of 30 cr hrs. Admis Cond course.

**8400 Seminar in Film, Visual Culture and the Performing Arts** G 3

Advanced graduate seminar allowing students to broaden their engagement with non-literary culture based in German-speaking texts and to conduct research into targeted areas of interest.

Prereq: 6200, or Grad standing, or permission of instructor. Repeatable to a maximum of 30 cr hrs. Admis Cond course.

**8500 Doctoral Colloquium** G 1

Regular student-driven discussions of ongoing dissertations, current topics in the professional field, and new research approaches to Germanic Studies.

Prereq: Successful completion of Ph.D. candidacy exams, or permission from Director of Graduate Studies and instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U. Admis Cond course.

**8501 Graduate Student Teaching Apprenticeship** G 1 - 3

Opportunity for advanced graduate students to plan and teach in conjunction with faculty member a course at 2000 or higher level.

Prereq: Grad standing, and a minimum of one year experience as GTA. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.

**8600 Seminar in Linguistics and Applied Linguistics** G 3

Explore the structure, historical development, use of German and its social and dialectal variations. Practical application of the knowledge gained to the teaching of German.

Prereq: 6600. Repeatable to a maximum of 30 cr hrs. Admis Cond course.

**8999 Dissertation Research** G 1 - 3

Research for dissertation purposes.

Prereq: Permission of the dissertation advisor and Director of Graduate Studies. Repeatable. This course is graded S/U.

## Graduate School

**4501 Graduate Study and Academic Careers** U 1 - 4

Exploration of graduate study and academic careers.

Prereq: Not open to students with credit for 501. This course is graded S/U.

**6701 Preparing Future Faculty** G 1 - 3

Mentorship and professional development activities in conjunction with partner institutions. Students must successfully complete application process and be admitted.

Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.

**7189 Graduate Research or Field Study** G 0

For graduate students pursuing off-campus field experiences, study or research without using university resources or faculty time.

Prereq: Permission of instructor. This course is graded S/U.

**8999 Research: Interdisciplinary** G 1 - 12

Interdisciplinary doctoral dissertation research approved by the Graduate School for One-of-a-Kind programs.

Repeatable. This course is progress graded (S/U).

## Greek

**1101 Elementary Ancient Greek** U 5

Introduction to the language of the ancient Greek authors and the New Testament. Not open to students with 3 or more years of study in this language in high school, except by permission of department.

Au Sem. Prereq: Not open to students with credit for 102. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102 Intermediate Ancient Greek I** U 5

Intermediate Ancient Greek I.

Sp Sem. Prereq: 1101. Not open to students with credit for 103. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**2101 Attic Prose** U 3

Readings in Attic prose authors such as Plato, Xenophon or Lysias.

Prereq: 1103 or equiv, or permission of instructor. Not open to students with credit for 221.

**2102 Homer** U 3

Selected readings from the Iliad or Odyssey.

Prereq: 1103 or equiv, or permission of instructor. Not open to students with credit for 223.

**2103 The Greek Historians** U 3

Readings from Herodotus, Thucydides or Xenophon.

Prereq: 1103 or equiv, or permission of instructor. Not open to students with credit for 224.

**2104 Greek Tragedy** U 3

Readings from the tragedies of Sophocles or Euripides.

Prereq: 1103 or equiv, or permission of instructor. Not open to students with credit for 222 and 225.

**2110 The Greek New Testament** U 3

Studies the language of the Greek New Testament through selected reading passages.

Prereq: 1103 or equiv, or permission of instructor. Not open to students with credit for 210.

**2193 Individual Studies** U 1 - 9

Intermediate readings in Greek literature.

Prereq: 1103 or equiv, or permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

**4998 Research** U 1 - 3

A program of study arranged for each student.

Prereq: Sr standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**4998H Honors Research** U 1 - 3

A program of study arranged for each student.

Prereq: Honors standing, and Sr standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**4999 Thesis Research** U 1 - 6

A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in Greek.

Prereq: Jr standing or above, and Enrollment in Classics Major; or permission of instructor or department. Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.

**4999H Honors Thesis Research** U 1 - 6

A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in Greek.

Prereq: Honors standing, Jr standing or above, and Enrollment in Classics Major; or permission of instructor or department. Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.

**5011 Greek Epic** U G 3

Readings from Greek epic poets such as Homer, Hesiod, or Apollonius of Rhodes.

Prereq: Two courses at the 200 level, or Grad standing, or permission of instructor. Not open to students with credit for 607.

## 226 Greek

<b>5013</b>	<b>Greek Historians</b>	<b>U G</b>	<b>3</b>
Comparative readings from Greek historians such as Herodotus, Thucydides, Xenophon and Plutarch. Prereq: Two courses at 2000 level, or Grad standing, or permission of instructor. Not open to students with credit for 604.			
<b>5014</b>	<b>Greek Drama</b>	<b>U G</b>	<b>3</b>
Readings in Greek drama, from tragedies of Aeschylus, Sophocles and Euripides, and comedies of Aristophanes and Menander. Prereq: Two courses at 2000 level, or Grad standing, or permission of instructor.			
<b>5016</b>	<b>Readings in Greek Philosophy</b>	<b>U G</b>	<b>3</b>
Readings from Greek philosophers, such as Plato or Aristotle, or arranged according a common topic, such as Presocratic philosophy or ethics. Prereq: Two courses at 200 level, or Grad standing, or permission of instructor. Not open to students with credit for 609.			
<b>5017</b>	<b>Later Greek Prose</b>	<b>U G</b>	<b>3</b>
Readings in late antique and Byzantine Greek prose authors. Prereq: Two courses at 2000 level, or Grad standing, or permission of instructor.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 9</b>
A program of study arranged for each student, with specific passages for reading and topics from Greek literature, culture or religion for investigation. Prereq: Two courses at 2000 level, or Grad standing, or permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 9</b>
A program of study arranged for a small group of students, with specific passages for reading and topics from Greek literature, culture or religion for investigation. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			
<b>6891</b>	<b>Greek Survey: Prose</b>	<b>G</b>	<b>5</b>
Survey of Greek prose literature from its beginning to late antiquity focusing on language competence and literary history. Offered Autumn Semester in alternation with Latin 6891. Au Sem. Prereq: Two courses at 2000 level, or Grad standing, or permission of instructor. Not open to students with credit for 701.			
<b>6892</b>	<b>Greek Survey: Poetry</b>	<b>G</b>	<b>5</b>
Survey of Greek Poetry from Homer to late antiquity focusing on language competence and literary history. Offered Spring Semester in alternation with Latin 6892. Sp Sem. Prereq: Two courses at 2000 level, or Grad standing, or permission of instructor. Not open to students with credit for 702.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Assigned reading of Greek authors or topics of Greek culture to help with language requirements or to prepare for exams. Au, Sp, Su Sems. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			
<b>7890</b>	<b>Graduate Seminar on Greek Literature and Culture</b>	<b>G</b>	<b>1 - 3</b>
Graduate research seminar on topics in the study of Greek literature, culture or religion. Prereq: Grad standing. Repeatable to a maximum of 30 cr hrs or 15 completions.			
<b>7891</b>	<b>Graduate Seminar on Greek Linguistics</b>	<b>G</b>	<b>1 - 3</b>
Graduate research seminar on Greek linguistics. Prereq: Grad standing. Repeatable to a maximum of 30 cr hrs or 15 completions.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 9</b>
Readings and discussions connected with the writing of a dissertation on a topic of Greek literature and culture. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.			

## Health and Rehabilitation Sciences

<b>1100.01</b>	<b>Health and Rehabilitation Sciences Survey</b>	<b>U</b>	<b>1</b>
Introduction to the University, the School of Health and Rehabilitation Sciences and its academic programs. Emphasis on strategies for success, resources and procedures. Prereq: Must be enrolled in Pre-HthRhSc. This course is graded S/U.			
<b>1100.01H</b>	<b>Health and Rehabilitation Sciences Honors Survey</b>	<b>U</b>	<b>1</b>
Introduction to the University, the School of Health and Rehabilitation Sciences and its academic programs. Emphasis on strategies for success, resources and procedures. Additional emphasis on requirements for Honors participation. Prereq: Honors standing, and enrollment in Pre-HthRhSc. This course is graded S/U.			
<b>1100.02</b>	<b>Health and Rehabilitation Sciences Survey - Transfer Student</b>	<b>U</b>	<b>1</b>
This course is designed for new transfer students to take in their first semester at Ohio State. Introduce them to the policies and procedures, HRS majors, and to develop an academic plan to be eligible to apply to their intended HRS major. Prereq: Enrollment in Pre-HthRhSc. This course is graded S/U.			

<b>2200</b>	<b>CPR for Healthcare Professionals</b>	<b>U</b>	<b>1</b>
Knowledge, competencies, issues and concerns of health care providers regarding basic life support. Completion of course leads to American Heart Association certification Basic Life Support-Health Care Provider card.			
<b>2300</b>	<b>Service Learning in Vulnerable Communities</b>	<b>U</b>	<b>3</b>
This service-learning course examines vulnerable populations from multiple perspectives including ethnicity, socioeconomic status, mental and physical disability, chronic disease, culture, and the impact on both individual and community health. Prereq: Not open to students enrolled in the Bachelor of Science in Health Sciences.			
<b>2500</b>	<b>Medical Terminology for the Health Professions</b>	<b>U</b>	<b>3</b>
Terminology and abbreviations pertaining to anatomy, physiology, pathology, diagnostic processes/procedures and medical/surgical interventions by body system. This course is available for EM credit.			
<b>2530</b>	<b>The Evolving Art and Science of Medicine</b>	<b>U</b>	<b>3</b>
An analysis of the concepts of health and healing, coupled with an examination of historical developments that have impacted the art and science of the practice of medicine. Prereq: Not open to students with credit for Allimed 307. GE cultures and ideas course.			
<b>2530.01</b>	<b>Evolving Art and Science of Medicine</b>	<b>U</b>	<b>3</b>
Students will evaluate works and experiences of art as they reflect on medicine and the science of medicine today and historically. Such studies develop capacities for aesthetic and historical response and judgment; interpretation and evaluation; critical listening, reading, seeing, thinking, and writing. Prereq: Enrollment in online Health Sciences program.			
<b>3000</b>	<b>Introduction to the Health Sciences Major and Career Opportunities</b>	<b>U</b>	<b>1</b>
An introduction to the Health Sciences major, tools for success, and careers in healthcare and health-related services. Prereq: Enrollment in Health Sciences Program. This course is graded S/U.			
<b>3000.01</b>	<b>Introduction to the Health Sciences Major and Career Opportunities</b>	<b>U</b>	<b>1</b>
An introduction to the Health Sciences major, tools for success, and careers in healthcare and health-related services. Prereq: Enrollment in online Health Sciences program. This course is graded S/U.			
<b>3400</b>	<b>Health Promotion and Disease Prevention</b>	<b>U</b>	<b>3</b>
Introduction to the concepts and theories involved in health promotion and disease prevention. Prereq: Acceptance into Health Sciences program, or permission of instructor.			
<b>3400.01</b>	<b>Health Promotion &amp; Disease Prevention</b>	<b>U</b>	<b>3</b>
Introduction to the concepts and theories involved in health promotion and disease prevention. Prereq: Enrollment in online Health Sciences program.			
<b>3500</b>	<b>Critical Phases in Life</b>	<b>U</b>	<b>3</b>
An examination of humans' development from conception to death and factors critical to continuing health. Prereq: Biology 1101, and one class in Psych.			
<b>3500.01</b>	<b>Critical Phases in Life</b>	<b>U</b>	<b>3</b>
An examination of humans' development from conception to death and factors critical to continuing health. Prereq: Enrollment in online Health Sciences program.			
<b>4000</b>	<b>Application of Ethical Decision Making in Health Care</b>	<b>U</b>	<b>3</b>
Examination of ethical theories, bioethical principles, personal ethics, and ethical decision making, using a six-step model for application in the allied health professions.			
<b>4000.01</b>	<b>Ethical Decision Making in Healthcare</b>	<b>U</b>	<b>3</b>
Examination of ethical theories, bioethical principles, personal ethics, and ethical decision making, using a six-step model for application in the allied health professions. Prereq: Enrollment in online Health Sciences program.			
<b>4189</b>	<b>Health Sciences Internship</b>	<b>U</b>	<b>1 - 3</b>
Field experience in a health care system highlighting health management, health & wellness, or other health science. This course is graded S/U.			
<b>4193</b>	<b>Undergraduate Independent Study</b>	<b>U</b>	<b>1 - 3</b>
Guided study of selected topics. Repeatable to a maximum of 15 cr hrs or 10 completions. This course is progress graded (S/U).			
<b>4193H</b>	<b>Undergraduate Independent Study</b>	<b>U</b>	<b>1 - 3</b>
Guided study of selected topics. Prereq: Honors standing, and enrollment in HthRhSc; or permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is progress graded (S/U).			
<b>4300</b>	<b>Contemporary Topics in Health and Society</b>	<b>U</b>	<b>3</b>
Offers the opportunity to delve into the current issues and factors that are influencing and shaping both society and health systems and to engage in a process of scholarly exchange around the incubation of ideas to address these current issues. Prereq: 3400, 4400, and Sr standing; or permission of instructor.			

## Health and Rehabilitation Sciences 227

### 4300.01 Contemporary Issues in Health & Society U 3

Offers the opportunity to delve into the current issues and factors that are influencing and shaping both society and health systems and to engage in a process of scholarly exchange around the incubation of ideas to address these current issues.  
Prereq: 3400, 4400, Sr standing, and enrollment in online Health Sciences program; or permission of instructor.

### 4320 Clinical Interviewing & Risk Assessment in Healthcare U 3

Identification and prevalence of health risk behaviors and application of interviewing and counseling techniques designed to affect behavior change incorporating wellness and prevention strategies.  
Prereq: 3400, Psych 1100, and admission to School of Health and Rehabilitation Sciences.

### 4350 Introduction to Legal Concepts in Health Care U 2

Overview of legal concepts affecting practice of healthcare professionals including legal system, professional liability, and laws governing appropriate access and disclosure of patient information.  
Prereq: 5370; or Jr or Sr standing in HRS; or permission of instructor.

### 4350.01 Introduction to Legal Concepts in Health Care U 2

Overview of legal concepts affecting practice of healthcare professionals including legal system, professional liability, and laws governing appropriate access and disclosure of patient information.  
Prereq: 5370, or Jr or Sr standing in HRS, or permission of instructor; and enrollment in online Health Sciences program.

### 4370 Community and Policy Influence in Health Care U 3

The course covers historical, societal, political, and economic forces influencing the accessibility, cost, quality of personal and public health services. Students are exposed to major U.S. health policy issues concerned with health improvement and protection, and the related financing, organization, and delivery of healthcare.  
Prereq: 3400, or permission of instructor.

### 4370.01 Community and Policy Influence in Health Care U 3

The course covers historical, societal, political, and economic forces influencing the accessibility, cost, quality of personal and public health services. Students are exposed to major U.S. health policy issues concerned with health improvement and protection, and the related financing, organization, and delivery of healthcare.  
Prereq: 3400, or permission of instructor; and enrollment in online Health Sciences program.

### 4400 Individual Differences in Patient/Client Populations U 3

Examination of individual differences in patient/client populations from multiple perspectives of disability, chronic disease, healthcare disparity, culture, and the impact on health and wellness.  
Prereq: 3400, and enrollment in Health Sciences program; or permission of instructor.

### 4400.01 Individual Differences in Patient/Client Populations U 3

Examination of individual differences in patient/client populations from multiple perspectives of disability, chronic disease, healthcare disparity, culture and the impact on health and wellness.  
Prereq: 3400, and enrollment in online Health Sciences program; or permission of instructor.

### 4450 Health Promotion in Practice U 3

Integration of theory and emergent perspectives and applications in health promotion. Students will demonstrate their understanding and application through development of a grant proposal.  
Prereq: 3400 and 4900, or permission of instructor.

### 4450.01 Health Promotion in Practice U 3

Integration of theory and emergent perspectives and applications in health promotion. Students will demonstrate their understanding and application through development of a grant proposal.  
Prereq: Enrollment in online Health Sciences program.

### 4470S Teamwork and Leadership in Health Sciences U 3

Gain understanding of leadership and team-building through experience in planned health related activities.  
Prereq: 4450 and 4950, or permission of instructor.

### 4530 Nutrition for Fitness U 3

Introduction to the basic principles of nutrition as they relate to exercise performance of athletes and the physically active.  
Prereq: 3 cr hrs in Biology or Chem, and EEOB 2520 or Physio 3200 or equiv.

### 4530.01 Nutrition for Fitness U 3

Introduction to the basic principles of nutrition as they relate to exercise performance and body composition of athletes and the physically active.  
Prereq: 3 cr hrs in Biology or Chem; and EEOB 2520 or Physio 3200 or equiv., or permission of instructor; and enrollment in online Health Sciences program.

### 4570 The Role of Integrative Medicine U 3

A research-based analysis of the intersection between evidence-based medicine and complementary and alternative approaches to wellness, as defined by the National Institutes of Health.

### 4570.01 The Role of Integrative Medicine in Society U 3

A research-based analysis of the intersection between evidence-based medicine and complementary and alternative approaches to wellness, as defined by the National Institutes of Health.  
Prereq: Enrollment in online Health Sciences program.

### 4590 Global Health Inequalities: An Introductory Course U 3

The focus of this course is on recognizing health inequalities locally and beyond. Students will examine why communities in both the Global North and South do not have equitable access to high-quality health services and most importantly what can be done to promote equity.

### 4600S Health after Mid-Life U 3

Study of physical, psychological, and social components of normal aging and chronic disease for optimal aging; open to students interested in career in aging.  
Prereq: Not open to students with credit for Allimed 665.

### 4900 Evidence-Based Research in Health Sciences U 3

Overview of evidence-based practice as it applies to health care, including formulating relevant clinical questions, finding and evaluating evidence using effective search techniques, and translating research into practice.

### 4900.01 Evidence-based Research in Health Care U 3

Overview of evidence-based practice (EBP) as it applies to health care, including formulating relevant clinical questions, finding and evaluating evidence using effective search techniques, and translating research into practice.  
Prereq: 3400, and enrollment in online Health Sciences program; or permission of instructor.

### 4914 Group Education Process in Healthcare U 3

Health care process: Principles of group education and health counseling as applied to responsibilities of the health care practitioner.  
Prereq: 3400, or permission of instructor.

### 4950 Program Development and Evaluation for Health Sciences U 3

Exposes the student to practical methods that can be used to develop, and evaluate health services programs in a variety of settings.  
Prereq: 3400, or permission of instructor.

### 4950.01 Program Development and Evaluation for Health Sciences U 3

Exposes the student to practical methods that can be used to develop, and evaluate health services programs in a variety of settings.  
Prereq: 3400, or permission of instructor.

### 4998 Undergraduate Research in Health Science U 1 - 5

Guided research by undergraduate students.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.

### 4998H Honors Undergraduate Research in Health Science U 1 - 5

Guided research by undergraduate honors students.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.

### 5000 Interdisciplinary Case Management for Working with Underserved Populations U G 2

Provides students the opportunity to collaborate with students from other health care professions including pharmacy, health and rehabilitation sciences, nursing, medicine and social work. The students will use a problem-based learning approach to patient care in community health, focusing on populations, living in poverty, with complex healthcare needs.  
Prereq: Enrollment in Medical Dietetics, Medical Laboratory Science, or Respiratory Therapy major, or Grad standing in Physical Therapy, Occupational Therapy, Allimed, or HthRhSc; or permission of instructor. This course is graded S/U. Cross-listed in Nursing, MedColl, Phr, and SocWork.

### 5100 Introduction to Assistive Technology U G 3

Students learn how to develop and implement assistive technology (AT) devices and services. The course includes information on disability, computer access/technology, alternative and augmentative communication, electronic cognitive devices, driver's rehabilitation, low vision technologies, seating and wheeled mobility, electronic activities of daily living, and home automation.

### 5200 Assistive Technology for Seating and Mobility U G 3

Students learn how to develop and implement seating and mobility devices and services. The course includes information on mobility devices including canes, crutches, walkers, manual wheelchairs, power wheelchairs, scooters and power add-on devices. The course also includes information on seating systems including seat cushions, back supports, and postural supports.  
Prereq: 5100.

### 5300 Management Principles and Human Resources for Health Care Professionals U G 3

An analysis of the management and human resources processes and its application to the health care setting.  
Prereq: Admission to HRS, or permission of instructor.

### 5300.01 Management Principles and Human Resources for the Healthcare Professional U G 3

An analysis of the management and human resources processes and its application to the healthcare setting.  
Prereq: Enrollment in online Health Sciences program.

## 228 Health and Rehabilitation Sciences

**5350 Case Studies in Health Sciences** U G 3

Experience in evaluating and analyzing case studies in health care and health services emphasizing applied critical thinking, problem solving and decision-making approaches in leadership.

Prereq: 3400 and 4400, or permission of instructor; and enrollment in Health Sciences program.

**5350.01 Case Studies in Health Sciences** U G 3

Experience in evaluating and analyzing case studies in health care and health services emphasizing applied critical thinking, problem solving and decision-making approaches in leadership.

Prereq: 3400 and 4400, or permission of instructor; and enrollment in online Health Sciences program.

**5370 U.S. Healthcare Policy and Delivery System** U G 3

An examination of healthcare delivery and current issues including history, policy, government regulations, legislation, politics, financing, accessibility, workforce and ethics.

Prereq: Soph or Jr standing, and admission to HRS; or enrollment in RespThr, RadSci, or HIMS; or permission of instructor.

**5370.01 US Healthcare Policy and Delivery** U G 3

An examination of healthcare delivery and current issues including history, policy, government, regulations, legislation, politics, financing, accessibility, workforce, and ethics.

Prereq: Enrollment in online Health Sciences program.

**5400 Computer, Communication and Control Technologies for Individuals with Disabilities** U G 3

Students learn how to develop and implement assistive technology devices and services which focus on computer, communication and control technologies. The course includes information on communication technologies, control interfaces, electronic aids to daily living, internet of things, zero-effort technologies, educational technologies, and emerging technologies.

Prereq: 5100.

**5450 Assistive Technology for Sports and Recreation** U G 3

Students learn how to develop and implement assistive technology devices and services in adapted sports and recreation. The course includes technology for Paralympic sports, summer sports, winter sports, video games, and recreation. The course will review principles of anthropometrics, biomechanics and ergonomics as it applies to adapted sports and recreation.

Prereq: 5100.

**5500 Introduction to Pathophysiology** U G 4

Fundamental concepts of pathophysiology including etiology, signs, symptoms, diagnosis, treatment, and complications of major body system disorders.

Prereq: EEOB 2520, Physio 3102, 3200, or permission of instructor.

**5500.01 Introduction to Pathophysiology** U G 4

Fundamental concepts of pathophysiology including etiology, signs, symptoms, diagnosis, treatment, and complications of major body system disorders.

Prereq: EEOB 2520, Physio 3102, 3200, or permission of instructor; and enrollment in online Health Sciences program.

**5510 Pharmacological Aspects of Practice in Health and Rehabilitation Sciences** U G 2

Fundamentals of pharmacokinetics, pharmacodynamics, drug law, selected medications and treatment methods utilized by allied health professionals. Prior completion of HthRhSc 5500 is recommended.

Prereq: EEOB 2520 or Physio 3200, or Grad standing, or permission of instructor.

**5510.01 Pharmacological Aspects of Practice in Health and Rehabilitation Sciences** U G 2

Fundamentals of pharmacokinetics, pharmacodynamics, drug law, selected medications and treatment methods utilized by allied health professionals.

Prereq: EEOB 2520 or Physio 3200, or permission of instructor; and enrollment in online Health Sciences program, or Grad standing.

**5550 Survey of Sports Medicine** U G 3

Survey of sports medicine for non-professionals. Topics include the sports medicine team; risk management; and common athletic injuries, their causes, prevention, and immediate care.

Prereq: Not open to Athletic Training majors. Not open to students with credit for AthTrng 661, or to students in Athletic Training major.

**5600 Global Aging** U G 3

Study of health and well-being of older adults in developed and developing countries and immigrant communities in the United States.

Prereq: Sr or Grad standing, or permission of instructor.

**5600.01 Global Aging** U G 3

Study of health and well-being of older adults in developed and developing countries and immigrant communities in the United States.

Prereq: Sr or Grad standing, or permission of instructor; and enrollment in online Health Sciences program.

**5608 Skeletal Biology** U G 3

This course reviews basic bone biology, and demonstrates how understanding it is essential for our ability to exploit the unique structure of bone, and explore health, disease, and behavior of human populations through the study of skeletal remains. The content of this course is especially applicable to students interested in clinical skeletal biology, forensic science, and bioarchaeology.

Cross-listed in Anthrop.

**5610 Death, Loss, and Grief in Multiple Perspectives** U G 2

Exploration of death, loss and grief from multiple perspectives: patient, family, institutional, community and health care provider.

Prereq: Jr standing, or permission of instructor.

**5620 Aging, Accessibility, and Design** U G 3

Analysis and development of product and residential environment design for an aging population using environmental adjustment theories. Students apply Universal Design principles to home modifications.

Prereq: Sr standing, or permission of instructor.

**5650 Aging and Public Policy Issues** U G 3

Examines major public and social policy issues of aging society, citizen participation in policy process, and analysis of policy decisions for the aging population in the United States.

**5660 Long Term Care Services Across the Continuum** U G 4

Introduction to long term care continuum, types of services, regulatory requirements, financing, alternatives, and issues of access, housing, challenges to providing quality care.

Prereq: 5370 or 5650, or Grad standing in HRS, or permission of instructor.

**5700 Multifaceted and Interdisciplinary Perspectives on Adolescent Mental Health** U G 2

This course will develop advanced knowledge of the developmental experience of adolescents and their mental health. It will explore a variety of factors that influence mental health and will include interdisciplinary perspectives on approaches that promote positive mental health among typically developing adolescents and those with diagnosed disorders.

Prereq: Psych 1100 or equiv.

**5860 Augmentative and Alternative Communication for the Multidisciplinary Professional** U G 3

This course is designed to provide students with knowledge in augmentative communication/augmentative & alternative communication (AAC) for children and adults. The course will explore the various types of AAC, the procurement process, funding of AAC, and intervention for people with complex communication needs secondary to a variety of diagnoses.

Cross-listed in SphHrng.

**5880.01 Interprofessional Education Seminar on Interprofessional Care** U G 2

Develop and practice skills necessary for interprofessional collaboration in solving complex human problems. Case based. Limited to students enrolled in Health and Rehabilitation Sciences, Edu, Law, Med, Nursing, Social Work and Theology.

Repeatable to a maximum of 4 cr hrs. Cross-listed in EduPAES 5880.01, MedColl 6880.01, and Nursing 5880.01.

**5880.03 Interprofessional Education Seminar on Ethical Issues Common to Helping Professions** U G 2

Ethical issues common to the professions, e.g., advancing technology, death and dying, privacy and confidentiality, professional boundaries. Cased based.

Prereq: Enrollment in Health and Rehabilitation Science, Education, Nursing, or Medicine. Repeatable to a maximum of 4 cr hrs. Cross-listed in EduPAES 5880.03, Nursing 5880.03, and MedColl 6880.03.

**5895 Food Insecurity, and Food Assistance Programming and Policy in the U.S** U G 3

Students will explore the complex set of factors that influence food insecurity in the U.S.; current approaches to addressing food insecurity in the U.S. at the local, state, and federal levels; the historical, social, political, and economic roots of current programming efforts; the strengths, limitations, and controversies related to such programming; and the potential for social welfare policy.

Cross-listed in PubAfrs.

**5900 Health Sciences Research: Interpretation and Applications** U G 3

Overview of research in the Health Sciences. This course is intended to prepare students to be educated consumers of research and to enable them to find, understand, interpret, and apply research findings in their professional practice.

**5900.01 Health Sciences Research: Interpretation and Applications** U G 3

Overview of research in the Health Sciences. This course is intended to prepare students to be educated consumers of research and to enable them to find, understand, interpret, and apply research findings in their professional practice.

Prereq: Admission to online Health Sciences program.

**5900E Health Sciences Research: Interpretation and Applications** U G 3

Overview of research in the Health Sciences. This course is intended to prepare students to be educated consumers of research and to enable them to find, understand, interpret, and apply research findings in their professional practice.

Prereq: Honors standing.

<b>6193</b>	<b>Graduate Independent Studies</b>	<b>G</b>	<b>1 - 3</b>
Guided study of select topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.			
<b>6295</b>	<b>Global Health Disability Seminar</b>	<b>G</b>	<b>2</b>
This course will engage students in an in-depth exploration of contemporary issues regarding global health and disability. Students will define disability, understand the different models of disability, study the historical context of disability issues worldwide, and discover how disability issues align with current global health agendas to achieve equity in health for all people. Prereq: Grad standing.			
<b>6795</b>	<b>Introduction to Graduate Studies</b>	<b>G</b>	<b>1</b>
Introduce new graduate students to the HRS graduate school and program through various means. Prereq: Admission into HRS Grad program.			
<b>7100</b>	<b>Introduction to Health &amp; Rehabilitation Science I</b>	<b>G</b>	<b>3</b>
Provide students with knowledge concerning rehabilitation concepts relative to integrated healthcare models, physiological concepts of injury and rehabilitation, and neuroscience for health and rehabilitation. Prereq: Admission to Health and Rehabilitation Science PhD program, or permission of instructor.			
<b>7150</b>	<b>Introduction to Health &amp; Rehabilitation Science II</b>	<b>G</b>	<b>3</b>
Provide students with knowledge of motor control and motor learning, behavioral and cognitive models for health and rehabilitation, explore the interaction of physical, neuroscience, cognitive and behavioral concepts in health and rehabilitation. Prereq: Admission to the Health and Rehabilitation Science Ph.D program, or permission of instructor.			
<b>7193</b>	<b>PhD Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Guided study of select topics. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 15 completions. This course is graded S/U.			
<b>7200</b>	<b>Teaching in the Health Sciences</b>	<b>G</b>	<b>2</b>
Principles and practices of teaching in the allied health professions; focuses on the application of teaching theory and systematic course construction within the context of allied health teaching and training. Prereq: Grad standing in Health and Rehabilitation Science. Not open to students with credit for Allimed 753.			
<b>7250</b>	<b>Teaching and Curriculum in Health and Rehabilitation Sciences</b>	<b>G</b>	<b>3</b>
Provide students with theoretical background and practical training for curriculum planning and teaching in health and rehabilitation sciences; exposure to teaching and curricular policies and procedures will occur. Prereq: Grad standing in HRS, or permission of instructor.			
<b>7289</b>	<b>Practicum: Educational</b>	<b>G</b>	<b>1 - 4</b>
Practical experience in an educational setting with the allied health fields. Prereq: 2-4 cr hrs in Education, or permission of instructor. Not open to students with credit for Allimed 889.01. This course is graded S/U.			
<b>7300</b>	<b>Management and Leadership in Health Sciences</b>	<b>G</b>	<b>3</b>
Application of management and leadership principles for the development of administration of allied health departments in the health care system. Prereq: Grad standing. Not open to students with credit for Allimed 730.			
<b>7350</b>	<b>Issues and Policy in Health Sciences</b>	<b>G</b>	<b>3</b>
Allied health professionals must increasingly face many complex issues that affect healthcare. It is crucial that graduate students be able to critically examine a broad range of issues and understand various positions and their implications. Prereq: Admission to Health and Rehabilitation Science Grad program.			
<b>7400</b>	<b>Injury Biomechanics: Topics in Mechanisms and Prevention</b>	<b>G</b>	<b>3</b>
A seminar course exploring research and methods in injury biomechanics. Topics will focus on mechanisms and prevention of injury and may include human subject testing, sports injury studies along with crash safety evaluation.			
<b>7410</b>	<b>Advanced Structure and Function of the Human Body</b>	<b>G</b>	<b>5</b>
This course investigates advanced concepts in human functional movement through the application of basic structures and anatomical relationships utilizing an evolutionary and biomechanical perspective as explanatory mechanisms. Prereq: Any undergraduate Anatomy/Physio course including comparative anatomy or evolutionary anatomy, and permission of instructor.			
<b>7411</b>	<b>Injury Biomechanics-Foundations and Experience</b>	<b>G</b>	<b>4</b>
This course introduces the foundations and experimental techniques of injury biomechanics that investigates human responses. Mechanisms of injury and the injury tolerances due to high energy impacts.			

<b>7574</b>	<b>Mixed Methods Approaches for Policy-Related Research</b>	<b>G</b>	<b>3</b>
Evaluate the strengths and weaknesses of various mixed method research designs and how to identify a design that is appropriate for your research question. The course will compare different paradigms, sample/case selection logics, and types of evaluation associated with qualitative, quantitative, and mixed methods research. Cross-listed in PubAfrs.			
<b>7595</b>	<b>Translational Neurolmunology</b>	<b>G</b>	<b>1</b>
This seminar course is designed for graduate master or doctoral level students involved in basic or translational research in Immunology or Neuroscience. Students develop skills in teaching, analyzing, discussing, synthesizing, and presenting immunology and neuroscience research. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>7650S</b>	<b>Interdisciplinary Case Studies in Clinical Gerontology</b>	<b>G</b>	<b>2</b>
Interdisciplinary seminar for graduate and professional students using a team approach and case studies to understand aging and work with older adults. Prereq: 7600, or Grad standing, or permission of instructor.			
<b>7700S</b>	<b>Global Health in the Health Professions</b>	<b>G</b>	<b>1 - 2</b>
Supervised on-site active learning in international health and educational settings focusing on enhancing skills in collaboration, communication, and clinical reasoning. Prereq: Successful completion of all discipline coursework, and submission of an application, and permission of instructor.			
<b>7717</b>	<b>Interdisciplinary Perspective on Developmental Disabilities</b>	<b>G</b>	<b>3</b>
Provides an introduction to the psychosocial, medical, and educational implications of developmental disabilities. Prereq: Permission of instructor. Not open to students with credit for 717.01 or 717.03. Cross-listed in EducSt, Social Work, Nursing, Psych, and SphHrng.			
<b>7718</b>	<b>Interdisciplinary Perspective on Autism Spectrum Disorder</b>	<b>G</b>	<b>3</b>
Teaches the analytical skills necessary to comprehend and formulate an interdisciplinary framework relating to major scientific and theoretical perspectives in autism spectrum disorders. Prereq: Permission of instructor. Cross-listed in EducSt, SocWork, Nursing, Psych, and SphHrng.			
<b>7795</b>	<b>Graduate Seminar</b>	<b>G</b>	<b>1 - 3</b>
Investigation of current topics of significance to allied health practitioners. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>7883</b>	<b>Responsible Conduct of Research</b>	<b>G</b>	<b>3</b>
An exploration of the complications in conducting scientific research. Topics include authorship, human and animal subjects training, data acquisition and ownership and conflicts of interest. Prereq: Admission to Grad programs in Health and Rehabilitation Sciences, or permission of instructor.			
<b>7888</b>	<b>Health and Rehabilitation Science Grand Rounds Intro</b>	<b>G</b>	<b>1</b>
Students develop skills in analyzing, discussing and synthesizing health and rehabilitation research. Students present their own research and critically appraise faculty research. Discussion and demonstration of leadership will occur. Prereq: Admission to Health and Rehabilitation Sciences PhD program, or permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>7900</b>	<b>Evidence Based Practice I: Critical Analysis of Measurement and Diagnostic Tests</b>	<b>G</b>	<b>1</b>
Prepares students for evidence-based practice, emphasizing best practices in clinical measurements and interpretation of diagnostic reliability, validity, prediction and measures of clinically meaningful change. Prereq: Research Methods, Basic Statistics, or permission of instructor.			
<b>7910</b>	<b>Evidence Based Practice II: Critical Analysis of Intervention Research and Systematic Review</b>	<b>G</b>	<b>1</b>
Prepares students for evidence-based practice, emphasizing the processes of critical inquiry and analysis in a multidisciplinary forum. Scientific literature related to intervention research and systematic reviews will be emphasized. Prereq: Research Methods, Basic Statistics, or permission of instructor.			
<b>7990</b>	<b>Non Thesis Research</b>	<b>G</b>	<b>1 - 5</b>
Research for Non-Thesis. Repeatable to a maximum of 30 cr hrs or 15 completions. This course is graded S/U.			
<b>7998</b>	<b>Practicum: Research</b>	<b>G</b>	<b>1 - 4</b>
Practical experience in a research setting with the allied health fields. Prereq: 2-4 cr hrs in Research Design, or permission of instructor. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 5</b>
Research for thesis. Repeatable to a maximum of 30 cr hrs or 15 completions. This course is graded S/U.			

## 230 Health and Rehabilitation Sciences

<b>8200</b>	<b>Research Dissemination in Health and Rehabilitation</b>	<b>G</b>	<b>2</b>
The course will prepare students to disseminate research findings, evaluate the dissemination of research, and provide opportunities for self-reflection, using their own research project. Students will prepare a full-length peer-reviewed manuscript that is suitable for publication, a scientific poster, oral presentation, and lay and scientific abstracts. Prereq: Grad level data analysis course, or permission of instructor. This course is graded S/U.			
<b>8250</b>	<b>Advanced Statistical Methods for Health and Rehabilitation Sciences</b>	<b>G</b>	<b>2</b>
This course will facilitate skill development in advanced statistical methods commonly used in health and rehabilitation science. Students will be exposed to analytic strategies appropriate for each type of outcome variable (i.e., dichotomous, categorical, ordinal, and continuous variables) as well as various research designs (i.e., repeated measures vs. cross-sectional data). Prereq: Graduate-level data analytics course or permission of the instructor. Students are expected to have: 1) proficiency with at least one statistical program (e.g., STATA, SPSS, R, SAS, MatLab, etc.); 2) solid foundational understanding of simple and multiple linear regression.			
<b>8289</b>	<b>PhD Teaching Practicum</b>	<b>G</b>	<b>1</b>
Students gain practical, advanced skills in allied health teaching through structured mentoring experiences. Prereq: Admission to Health and Rehabilitation Sciences PhD program, or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>8680</b>	<b>Experimental Methods in Biomechanics</b>	<b>G</b>	<b>3</b>
The purpose of this Experimental Methods in Biomechanics course is to introduce you to the wide variety of equipment that is used to make biomechanical measurements in clinical and research settings. We will discuss the technology/theory that was used to develop each measurement technique, how it is typically used, and its advantages and limitations.			
<b>8888</b>	<b>Health and Rehabilitation Science Grand Rounds Advanced</b>	<b>G</b>	<b>1</b>
Students develop skills in analyzing, discussing and synthesizing health and rehabilitation research. Students present their own research and critically appraise faculty research. Prereq: Admission to Health and Rehabilitation Sciences PhD program, or permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>8891</b>	<b>Advanced Skeletal Biology: Clinical Perspectives</b>	<b>G</b>	<b>3</b>
This seminar is an investigation into the biological and hierarchical mechanisms underpinning skeletal system response to environmental factors, growth and development, adaptation, injury, healing processes, and rehabilitation. Prereq: Permission of instructor.			
<b>8998</b>	<b>Doctoral Research Practicum</b>	<b>G</b>	<b>1 - 3</b>
Students gain practical, advanced skills in health and rehabilitation research through structured research experiences. This course is designed for the student to gain exposure to various research programs or to develop/apply research skills. Prereq: Enrollment in a HRS Doctoral Program, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>8999</b>	<b>PhD Research</b>	<b>G</b>	<b>1 - 15</b>
Research for Dissertation. Repeatable to a maximum of 30 completions. This course is graded S/U.			

### Health and Wellness Innovation in Healthcare

<b>1100</b>	<b>Health and Wellness Innovation in Healthcare Survey</b>	<b>U</b>	<b>1</b>
Introduction to the Health and Wellness Innovation in Healthcare degree with emphasis on strategies for success, resources, and procedures. Prereq: Enrollment in Pre-HWIH. Not open to students with credit for 100. This course is graded S/U.			
<b>2110</b>	<b>Health Athlete</b>	<b>U</b>	<b>1</b>
An overview of four dimensions of personal energy (physical, emotional, mental and spiritual [purpose]) with guidance in developing self-care strategies for each. Prereq: Enrollment in HWIH major, or permission of instructor. This course is graded S/U.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 4</b>
Students will gain knowledge and skills within the area of expertise of a faculty mentor. The course will provide individualized learning opportunities. Prereq: Enrollment in HWIH major or minor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>2200</b>	<b>Introduction to Health Literacy</b>	<b>U</b>	<b>3</b>
First of seven (five in minor) of the Health and Wellness Series; students will learn to define health literacy and identify and use the best practices of health literacy to improve health and wellness. Prereq: Enrollment in HWIH major or minor, or permission of instructor.			
<b>2210</b>	<b>Dimensions of Wellness and Resilience</b>	<b>U</b>	<b>3</b>
Second in a series of seven in the Health and Wellness Innovation in Healthcare (HWIH) series; includes an overview of science of behavior change, dimensions of wellness, resilience concepts and professional role development. Prereq: Enrollment in HWIH major or minor.			

<b>2220</b>	<b>Wellness in Chronic Conditions I</b>	<b>U</b>	<b>5</b>
This course introduces the impact of chronic conditions on the health of individuals and populations and includes exploration of innovative disease prevention programs. Includes integration of health coaching strategies and health literacy issues in clients with chronic conditions and related, common medications. Prereq: 2210, and enrollment in HWIH major or minor.			
<b>2780</b>	<b>Scholarship for Evidence Based Practice</b>	<b>U</b>	<b>3</b>
Introduction to information literacy, research methods and evidence based practice as they relate to health promotion. Prereq: Enrollment in HWIH major.			
<b>3110</b>	<b>Life Enhancement and Personal Wellness</b>	<b>U</b>	<b>3</b>
This course is designed to solidify and sustain gains in personal health; explore core principles of health literacy, holistic health and prevention of chronic disease related to self and others. Prereq: Enrollment in the HWIH major.			
<b>3220</b>	<b>Wellness in Chronic Conditions II</b>	<b>U</b>	<b>4</b>
Fifth in a series of seven of the Health and Wellness Series; Examines innovative models across the continuum of care designed to positively affect the health of individuals and populations. Prereq: 2200, 2210, 2220, 2780, and 3230, and enrollment in HWIH major or minor.			
<b>3230</b>	<b>Coaching for Health Improvement</b>	<b>U</b>	<b>3</b>
Fourth in a series of seven of the Health and Wellness Innovation in Healthcare (HWIH) series; reviews relevant theories, typical strategies and coach-client relationship principles defined by the International Coaching Federation used in health coaching to promote effective and sustainable behavior change. Prereq: 2200, 2210, 2220, and 2780, and enrollment in HWIH major or minor.			
<b>3240</b>	<b>Health Program Planning and Evaluation</b>	<b>U</b>	<b>3</b>
The social, educational and behavioral foundations of health promotion programming and methods for evaluation will be covered. Skills to conduct needs assessment, program planning and implementation, and process, impact and outcome evaluations will be developed. Prereq: 2200, 2210, 2220, and 2780, and enrollment in HWIH major.			
<b>3430</b>	<b>Integrating Culture in Healthcare</b>	<b>U</b>	<b>3</b>
Introduction to concepts and techniques for the provision of culturally sensitive care within the U.S. and across global contexts. Prereq: 2200, 2210, 2220, and 2780, and enrollment in HWIH major.			
<b>3490</b>	<b>Technology-Based Health Promotion Strategies</b>	<b>U</b>	<b>3</b>
Explore theory underlying selection and use of education technology and pedagogy to engage individuals, families, organizations and communities in health promotion and wellness strategies. Prereq: 2200, 2210, 2220, 2780, and 3230, and enrollment in HWIH major.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 4</b>
Individual study of special topics in health and wellness innovation in healthcare. Prereq: Enrollment in the Health and Wellness Innovation in Healthcare (HWIH) program, or permission of instructor. This course is graded S/U.			
<b>4300.01</b>	<b>HWIH Practicum I</b>	<b>U</b>	<b>5</b>
Sixth in a series of seven courses in the Health and Wellness Innovation in Healthcare series; synthesis and application of health and wellness content including health coaching, health literacy, holistic health/prevention and innovation threads in field experience projects in an organization. Prereq: 2200, 2210, 2220, 2780, 3220, 3230, 3240, 3430, 3490; BusMHR 2500; HFDS 2400, PubHHBP 3510 or PubHlth 2010; HumnNtr 2310; Nursing 2102; Sociol 1101; and 3306; Psych 1100; and enrollment in HWIH major.			
<b>4300.02</b>	<b>HWIH Practicum II</b>	<b>U</b>	<b>5</b>
Seventh in a series of seven courses in the Health and Wellness Innovation in Healthcare series; integration of program content and exemplifying the roles of knowledgeable health coach, innovator, and holistic health/prevention and health literacy professional in the culminating field experience. Prereq: 4300.01, and enrollment in HWIH major.			

### Health Care Innovation

<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 4</b>
Individual study of special topics in healthcare innovation. Prereq: Enrollment in the Masters of Healthcare Innovation (MHI) program, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>7440</b>	<b>Innovation in High Performing Organizations</b>	<b>G</b>	<b>3</b>
Students learn advanced concepts of innovation in a high performing organization and the leadership behaviors that sustain innovation. Students discuss cross-disciplinary theories of innovation for improving health and quality of healthcare. Students are introduced to innovation competencies including positive deviance, complexity leadership, and disruptive innovation. Prereq: Enrollment in the Masters of Healthcare Innovation (MHI) program, Healthcare Leadership & Innovation certificate program, or permission of instructor.			



**7441 Innovation Leadership: Leading from Within G 3**

This course encourages students to discover themselves as leaders to maximize innovation and organizational impact. Students explore their own leadership behaviors to better manage their energy and find balance in order to perform at a peak level and positively impact the advancement of innovation in healthcare.

Prereq: Enrollment in the Masters of Healthcare Innovation (MHI) program, Healthcare Leadership & Innovation certificate program, or permission of instructor.

**7442 Building a Culture of Innovation in Health Systems G 3**

This course builds foundational knowledge of complex adaptive system characteristics in healthcare. It will explore complex adaptive system theory, systems thinking and network relationships as the context of leadership action and innovation. This course focuses on healthcare innovation from a systems perspective emphasizing the importance of networks, relationships, culture, and feedback.

Prereq: Enrollment in the Masters of Healthcare Innovation (MHI) program, Healthcare Leadership & Innovation certificate program, or permission of instructor.

**7460 Enhancing Communication in the Innovation System G 3**

This course develops leadership behaviors that facilitate constructive conversations, interactions, and outcomes through communication and coaching techniques. The course explores the role of relationships and communication in healthcare innovation, and challenges the traditionally negative view of conflict, by reframing it as a valuable and normative behavior in high performing organizations.

Prereq: Successful completion of 7440 and 7441, or permission of instructor.

**7500 Healthcare Policy: A Case for Innovation G 2**

This course introduces the multi-faceted elements of healthcare policy at the local, regional, and national level and. It discusses the role that healthcare policy plays in framing the context for healthcare innovation to occur. Learners will be introduced to the current state of the US healthcare system and the political, systematic, and environmental impact of healthcare policy on innovation.

Prereq: Enrollment in Masters of Healthcare Innovation program, or permission of instructor.

**7520 Utilizing Technology to Measure Outcomes in Health Systems G 3**

This course explores strategies for outcome measurement as a strategy for enhancing organizational performance and innovation and how to leverage technology to measure and integrate outcomes into the daily practice in healthcare. The course emphasizes technology's role in the measurement of outcomes at the personal, the professional, the organizational and the system level.

Prereq: Enrollment in Masters of Healthcare Innovation program, or permission of instructor.

**7521 Best Practices in Organizational Operations G 3**

This course explores various elements of organizational operations in order to fully impact the organizations and systems in which they work. This course develops basic skill sets in financial and business operations in healthcare organizations. Students learn specific skills in budgeting, planning, financial analysis, program development and implementation, and resource identification and use.

Prereq: Successful completion of 7440 and 7441, or permission of instructor.

**7522 Foundations of Innovative Healthcare Design Thinking G 3**

This course provides a framework and tools for innovation leaders to address challenges within healthcare systems. Principles of design thinking and design principles of functionality, value, and aesthetics are discussed and applied to analysis of complex healthcare problems. The steps involved in the design process will be applied to a Capstone Project.

Prereq: Enrollment in the Masters of Healthcare Innovation (MHI) program, or permission of instructor.

**7593 Capstone I G 3**

First of two Capstone courses in which students begin the implementation of the Capstone Project that was designed in HCINNOV 7522. Emphasis on the implementation plan and individual and team-based experiential learning.

Prereq: 7522, and enrollment in the Masters of Healthcare Innovation (MHI) program; or permission of instructor. Not open to students with credit for 7590, 7591, or 7592. This course is graded S/U.

**7594 Capstone II G 3**

Second of two Capstone courses in which students complete the Capstone Project that was initiated in HCINNOV 7593 (Capstone 1). Emphasis on implementation and evaluation of the Capstone Project and individual and team-based experiential learning.

Prereq: 7593, and enrollment in the Masters of Healthcare Innovation (MHI) program; or permission of instructor. Not open to students with credit for 7590, 7591, or 7592. This course is graded S/U.

**7780 Evidence-Based Practice for Innovation in Organizations G 3**

This course will focus on the use of evidence based practice, clinical decision making, and patient preferences as a core competency of innovation leaders.

Prereq: Enrollment in Masters of Healthcare Innovation (MHI) program, or permission of instructor.

**3520 Fundamentals of Health Information Management U 4**

Introduction to the Health Information Management (HIM) profession, medical record/health information content and systems, clinical documentation requirements, storage and retrieval systems, the U.S. healthcare delivery system, accreditation and regulatory standards, the electronic health record, HIM ethical issues, and current HIM topics.

Prereq: Enrollment in HIMS, or permission of instructor.

**3589 HIM Professional Practice Experience I U 1**

Technical practical applications in health information management and informatics to complement HIMS 3520.

Prereq: Enrollment in HIMS. Repeatable to a maximum of 3 cr hrs.

**4645 Management & Professional Development for Health Information Services U 4**

Practical aspects of management and supervision; professional self-development.

Prereq: Sr standing in HIMS, or permission of instructor.

**4685 Certification Review Course U 2**

This course will focus on key content areas to prepare students for the RHIA certification examination.

Prereq: Sr standing, and enrollment in HIMS.

**4689 HIM Professional Practice Experience II U 6**

Capstone health information management/informatics practicum in a healthcare or related business environment.

Prereq: Sr standing in HIMS, and completion of all coursework required during Jr year of HIMS professional curriculum. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**5193 Individual Studies U G 1 - 5**

Study of individual designed topics or problems in health information management not covered in regular course offerings.

Prereq: Enrollment in HIMS, grad standing in AMP or permission of instructor. Not open to students with credit for 693. This course is graded S/U.

**5535 Clinical Coding Performance and Management U G 4**

Study of ICD-10 and ICD-10-PCS coding and clinical classification systems and their application to health information system design, implementation and evaluation; data quality studies; use of secondary data; and business analytics. Introduction to coding management and clinical documentation improvement.

Prereq: 3520, HthRhSc 2500 or equiv, Anatomy 2300 or equiv, and EEOB 2520 or equiv; or permission of instructor.

**5536 Healthcare Revenue Life Cycle Management U G 3**

Concepts, principles and applications of managing the healthcare revenue cycle and leadership of processes.

Prereq: Anatomy 2300 or equiv., EEOB 2520 or equiv., HthRhSc 2500 or equiv., and enrollment in HIMS; or permission of instructor.

**5537 Healthcare Data Trending and Analytics U G 3**

Analysis of revenue cycle process performance, quality and productivity, and presentation of findings from analysis of coded data. Evaluation of coding, CDI, compliance and other revenue cycle processes.

Prereq: 5535, 5536, and 5620; or permission of instructor.

**5540 Healthcare Data Management and Analysis U G 3**

Data management and statistical methods for the collection of healthcare data with emphasis on epidemiology, data collection, study design and data analysis.

Prereq: 3520.

**5545 Fundamentals of Healthcare Law and Ethics in Health Information Management and Informatics U G 3**

Fundamentals of healthcare law and ethics including liability theories, evidence, patient consent, risk management, quality improvement, compliance, and requirements affecting the privacy, security, control, and disclosure of health information.

Prereq: Enrollment in HIMS program, or permission of instructor.

**5550 Human Factors in Healthcare U G 3**

Students learn human factors theories and concepts that are used in developing interventions to improve patient safety. Emphasis on formative evaluation methodologies and implementation science theory.

**5551 Healthcare Reimbursement for Practitioners U G 3**

An introduction for the healthcare practitioner to healthcare reimbursement providing an introduction to medical billing and an overview of payment systems used by both CMS and commercial payers, an overview of CMS oversight of claims payment, the role of auditing plays in the revenue cycle.

**5575 Project Management U G 1**

Creation of project plan for system purchase through installation.

Prereq: Enrollment in HIMS, or permission of instructor.

**5610 Medical Coding for Clinical Practice U G 3**

Introduction to medical code sets. Emphasis on use and understanding of the International Classification of Diseases - 10th edition - Clinical Modification and Procedure Coding System, computerized encoding systems for coding, and data quality.

## 232 Health Information Management And Systems

<b>5620</b>	<b>Healthcare Reimbursement Systems</b>	<b>U G</b>	<b>3</b>
In depth analysis of U.S. healthcare payment systems and methodologies including public funded programs, managed care contracting, utilization review and impact on providers, payers, consumers, policy and information systems. Prereq: 3520 or AllMed 5370, or Grad standing in AMP, or permission of instructor. Not open to students with credit for 589, 620, or 660.			
<b>5635</b>	<b>Quality Management and Performance Improvement in Healthcare</b>	<b>U G</b>	<b>3</b>
Continuous quality management measures and tools including patient safety and satisfaction, regulatory requirements, benchmarking, causal analysis, outcomes, clinical guidelines and pathways, risk management and utilization review. Prereq: 3520 or 5540, or Grad standing, or permission of instructor.			
<b>5648</b>	<b>Microcomputer Applications in the Health Sciences</b>	<b>U G</b>	<b>2</b>
Overview of microcomputer applications in health sciences with practical applications related to discipline specific needs. Prereq: Enrollment in HRS, HIMS, or permission of instructor.			
<b>5650</b>	<b>Healthcare Information Systems and Technology</b>	<b>U G</b>	<b>3</b>
In depth analysis of patient, administrative and financial information systems and management practices to support systems. Emphasis on government involvement in health information technology and information exchanges. Prereq: 5648 or equivalent, or Grad standing in HRS, or permission of instructor.			
<b>5654</b>	<b>Health Information Systems Analysis and Design</b>	<b>U G</b>	<b>4</b>
Applied systems planning and analysis techniques including database design and project management for health information systems evaluation, modeling and implementation. Prereq: 3520, 5648, and 5650; or Grad standing in HRS; or permission of instructor.			
<b>5655</b>	<b>Healthcare Database Administration</b>	<b>U G</b>	<b>3</b>
Database design and maintenance for health data applications including creation of data dictionaries and SQL query language to meet the business needs of healthcare entities. Prereq: 5654, or permission of instructor. Not open to students with credit for 654 or 655.			
<b>5660</b>	<b>Healthcare Financial Management</b>	<b>U G</b>	<b>2</b>
Overview of major financial issues in healthcare delivery including assessment of financial environment, financial statements, ratio analysis, managed care, payment systems, and capital project analysis. Prereq: Grad standing in AMP, and enrollment in HIMS; or permission of instructor.			
<b>5700</b>	<b>Project in Health Information Management and Systems</b>	<b>U G</b>	<b>3</b>
Students apply theoretical knowledge acquired from the certificate program to a project that closely resembles what would be done in a realistic work environment. During the project, students apply critical thinking skills to solve a real-world problem, from assessing the problem itself to applying suitable and appropriate methods to generate one or more solutions to the problem.			
<b>5890</b>	<b>Seminar in Health Information Management and Informatics</b>	<b>U G</b>	<b>1 - 4</b>
Selected topics in health information management and informatics. Prereq: Grad standing in AMP, and enrollment in HIMS, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>Hebrew</b>			
<b>1101.01</b>	<b>Elementary Hebrew I</b>	<b>U</b>	<b>4</b>
Conversation, reading, writing, vocabulary building, phonetics, and grammar of Hebrew. Closed to native speakers of this language. Prereq: Not open to students with 3 or more years of high school Hebrew through regular course enrollment or EM credit. This course is available for EM credit. GE for lang course.			
<b>1102.01</b>	<b>Elementary Hebrew II</b>	<b>U</b>	<b>4</b>
Reading of passages from various periods of Hebrew literature; review of salient points of elementary grammar & introduction to elements of classical Hebrew. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1101, or permission of instructor. Not open to students with credit for 102. This course is available for EM credit. GE for lang course.			
<b>1103.01</b>	<b>Intermediate Hebrew I</b>	<b>U</b>	<b>4</b>
Reading of Modern Hebrew short stories, poems, and essays; special emphasis on oral practice and Hebrew idioms. Closed to native speakers of this language. Prereq: 1102, or permission of instructor. This course is available for EM credit. GE for lang course.			
<b>2105</b>	<b>Intermediate Hebrew II</b>	<b>U</b>	<b>4</b>
Development of communication skills in Modern Hebrew; special emphasis on using new grammatical skills in advanced forms of composition and conversation. Not open to native speakers of this language or students with EM credit. Prereq: 1103, or permission of instructor.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 10</b>
Individual studies. Prereq: Permission of instructor or department. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			

<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 10</b>
Group studies. Prereq: Permission of instructor or department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>2216</b>	<b>The Medieval Jewish Experience</b>	<b>U</b>	<b>3</b>
A survey of ten centuries of medieval Jewish culture from the rise of Islam to the death of Shabbetai Zvi, the false Messiah (1676). Prereq: Not open to students who have taken 216, MedRen 2516 (Medieval 216), or JewshSt 2516. GE cultures and ideas and diversity global studies course. Cross-listed in MedRen 2516 and JewshSt 2516.			
<b>2241</b>	<b>Culture of Contemporary Israel</b>	<b>U</b>	<b>3</b>
An introduction to the Culture of modern Israel: historical roots, socio-political institutions and developments, and literary and artistic creations reflecting the realities of contemporary Israeli society. Prereq: Not open to students with credit for Hebrew 2241H (241H), 241, JewshSt 2242, or 2242H. GE cultures and ideas and diversity global studies course. Cross-listed in JewshSt 2242.			
<b>2241H</b>	<b>Culture of Contemporary Israel</b>	<b>U</b>	<b>3</b>
An introduction to the culture of modern Israel: historical roots, socio-political institutions and developments, and literary and artistic creations reflecting the realities of contemporary Israeli society. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2241 (241), 241H, JewshSt 2242, or 2242H. GE cultures and ideas and diversity global studies course. Cross-listed in JewshSt 2242H.			
<b>2367.01</b>	<b>Scripture and Script: The Bible in Contemporary Arts, Media, and Literature</b>	<b>U</b>	<b>3</b>
The Bible is a foundational text for contemporary art, literature, and political discourse as well as a sacred text in some religious traditions. This course examines Biblical reflections in cultural production, with particular focus on the American experience. It also gives students opportunities to see their own cultural contexts anew, and to explore the Bible's possible relevance to our time. Prereq: English 1110.01 or equiv. GE writing and comm: level 2 and VPA course.			
<b>2700</b>	<b>The Hebrew Bible in Translation</b>	<b>U</b>	<b>3</b>
Reading and analysis of selected chapters from the Hebrew scriptures and post-biblical Hebrew writings representative of major historical, cultural, and literary trends. Prereq: English 1110. Not open to students with credit for 2700H, JewshSt 2700, or 2700H. GE lit and diversity global studies course. Cross-listed in JewshSt.			
<b>2700H</b>	<b>The Hebrew Bible in Translation</b>	<b>U</b>	<b>3</b>
Reading and analysis of selected chapters from the Hebrew scriptures and post-biblical Hebrew writings representative of major historical, cultural, and literary trends. Prereq: Honors standing, and English 1110; or permission of instructor. Not open to students with credit for 2700, JewshSt 2700, or 2700H. GE lit and diversity global studies course. Cross-listed in JewshSt.			
<b>2702</b>	<b>Modern Hebrew Literature in Translation</b>	<b>U</b>	<b>3</b>
A survey of major themes and topics in Modern Hebrew literature from the middle of the 19th century to the present. Prereq: English 1110 (110). Not open to students with credit for 372, 2702H (372H), JewshSt 2702, or 2702H. GE lit and diversity global studies course. Cross-listed in JewshSt.			
<b>3210</b>	<b>Kabbalah and the Jewish Mystical Tradition</b>	<b>U</b>	<b>3</b>
The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience. Prereq: English 1110. Not open to students with credit for 2210, 2210H, 3210H, CompStd 2210, 2210H, JewshSt 2210, 3210, 2210H, 3210H, RelStds 2210, 3210, 2210H, or 3210H. GE cultures and ideas and diversity global studies course. Cross-listed in JewshSt and RelStds.			
<b>3210H</b>	<b>Kabbalah and the Jewish Mystical Tradition</b>	<b>U</b>	<b>3</b>
The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience. Prereq: Honors standing, and English 1110. Not open to students with credit for 2210, 3210, 2210H, CompStd 2210, 2210H, JewshSt 2210, 3210, 2210H, 3210H, RelStds 2210, 3210, 2210H, or 3210H. GE cultures and ideas and diversity global studies course. Cross-listed in JewshSt and RelStds.			
<b>3245</b>	<b>Israeli Film &amp; Society</b>	<b>U</b>	<b>3</b>
A survey of Israeli films from 1948 to the present day, tracing the development of film production in Israel as well as the relationship between film and society. Prereq: English 1110. Not open to students with credit for 2245 or JewshSt 2245 or 3245. GE VPA and diversity global studies course. Cross-listed in JewshSt.			
<b>3703</b>	<b>Prophecy in the Hebrew Bible</b>	<b>U</b>	<b>3</b>
An intensive investigation into the dynamics of Israelite prophecy and apocalyptic in the context of ancient Near Eastern culture. Prereq: English 1110. Not open to students with credit for 2703, JewshSt 2703, or 3703. GE lit and diversity global studies course. Cross-listed in JewshSt.			

<b>3704</b>	<b>Women in the Bible and Beyond</b>	<b>U</b>	<b>3</b>
An examination of the social, legal, and religious position of women as they appear in the Hebrew Bible and the ways in which they have been represented and interpreted in later textual, visual, and audio sources. Prereq: English 1110. Not open to students with credit for 2704, JewshSt 2704, or 3704. GE lit and diversity global studies course. Cross-listed in JewshSt.			
<b>3705</b>	<b>Israeli Society and the Holocaust</b>	<b>U</b>	<b>3</b>
The State of Israel was established soon after the Holocaust. This course examines the effects of the Nazi genocide on Israeli society, including political debates, public trials, films, museums and literature, while also reflecting on larger themes of genocide, trauma, memory, and commemoration. Taught in English. Prereq: English 1110 (110). Not open to students with credit for NELC 375. GE cultures and ideas and diversity global studies course.			
<b>3708</b>	<b>Wisdom Literature in the Bible</b>	<b>U</b>	<b>3</b>
An examination of the various ideas, themes, attitudes, implications, and genres of biblical and post-biblical wisdom literature. Prereq: English 1110. Not open to students with credit for 2708, JewshSt 2708, or 3708. GE lit and diversity global studies course. Cross-listed in JewshSt.			
<b>4101</b>	<b>Review of Grammar and Composition</b>	<b>U</b>	<b>4</b>
Review of Hebrew grammar; composition on assigned topics and some practice in translation. Prereq: 1103 (104). Not open to students with credit for 401.			
<b>4102</b>	<b>Hebrew and the Media</b>	<b>U</b>	<b>3</b>
Practice improving Hebrew conversation, comprehension, and writing through an exploration of contemporary Israeli media such as newspapers, internet, television, radio and film. Prereq: 1103 (104), or permission of instructor. Not open to students with credit for 402.			
<b>4601</b>	<b>Modern Hebrew Short Story</b>	<b>U</b>	<b>3</b>
Reading and discussion of masterpieces of modern Hebrew short stories in the 19th and 20th centuries. Prereq: 1103, or permission of instructor. Not open to students with credit for JewshSt 4601.			
<b>4602</b>	<b>Modern Hebrew Poetry</b>	<b>U</b>	<b>3</b>
Reading and discussion of masterpieces of modern Hebrew poetry in the 19th and 20th centuries. Prereq: 1103, or permission of instructor. Not open to students with credit for JewshSt 4602.			
<b>4998</b>	<b>Undergraduate Research in Hebrew</b>	<b>U</b>	<b>1 - 3</b>
Offers undergraduates with special aptitudes a greater opportunity to do more independent study and research than is possible in normal course work. Prereq: Permission of instructor. Not open to students with credit for 783H. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research in Hebrew</b>	<b>U</b>	<b>1 - 3</b>
Offers undergraduate honors students a greater opportunity to do more independent study than is possible in normal coursework. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis</b>	<b>U</b>	<b>1 - 3</b>
Offers undergraduates with special aptitudes the opportunity to do independent study leading to a thesis. Prereq: Sr standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>4999H</b>	<b>Undergraduate Honors Thesis</b>	<b>U</b>	<b>1 - 3</b>
Offers undergraduates with advanced aptitudes the opportunity to do independent study leading to an honors thesis. Prereq: Honors standing, and a grade of A in at least half of the Hebrew courses taken and an average grade of B or above in all Hebrew courses, and Sr standing; or permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5100</b>	<b>Introduction to Biblical Hebrew</b>	<b>U G</b>	<b>3</b>
Introduction of main elements of Biblical Hebrew grammar and syntax, for study of ancient and late antique Mediterranean religion and History, for students in Classics, History, NELC, etc. Requires no previous study of Hebrew language but assumes moderate experience with studying another/non-native language. Prereq: Third-semester level [1103] in any other modern or classical language, or permission of instructor.			
<b>5101</b>	<b>Biblical Hebrew Grammar</b>	<b>U G</b>	<b>3</b>
Introduction to the phonology, morphology, and syntax of the Biblical Hebrew idiom. Prereq: 1103, or permission of instructor. Not open to students with credit for JewshSt 5101.			
<b>5105</b>	<b>History of the Hebrew Language</b>	<b>U G</b>	<b>3</b>
Genealogical and typological relations within the Semitic family; a survey of Biblical, Mishnaic, and Modern Hebrew. Prereq: 1103, or permission of instructor. Not open to students with credit for JewshSt 5105.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 10</b>
Individual studies. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			

<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 10</b>
Group Studies. Repeatable to a maximum of 20 cr hrs or 5 completions.			
<b>5601</b>	<b>Introduction to Hebrew Literary and Cultural Texts</b>	<b>U G</b>	<b>3</b>
Literary and cultural Hebrew texts from the biblical to the modern period; students will develop the ability to read critically and to build analytical vocabulary. In Hebrew. Prereq: 2105, or permission of instructor. Not open to students with credit for JewshSt 5601.			
<b>5602</b>	<b>The Bible as Literature: Selected Readings</b>	<b>U G</b>	<b>3</b>
Critical study of basic issues in the language and analysis of biblical texts. In Hebrew. Prereq: 2105, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5603</b>	<b>Readings in Rabbinic Literature</b>	<b>U G</b>	<b>3</b>
Study of selected texts and issues in Rabbinic literature, and discussions of the methods by which they are studied. In Hebrew. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5691</b>	<b>Topics in Hebrew Literature and Culture</b>	<b>U G</b>	<b>3</b>
This course will explore topics in Hebrew literature and culture in depth, ranging from biblical times to contemporary society. Texts and/or films will be provided in Hebrew, so that students can continue to improve their Hebrew analysis and comprehension skills. Each semester will focus on a different topic, so this course may be repeated for credit towards the Hebrew-Jewish Studies major & minor. Prereq: 1103, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 15</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Repeatable to a maximum of 30 cr hrs or 5 completions.			
<b>7602</b>	<b>Studies in Hebrew Prose</b>	<b>G</b>	<b>3</b>
Advanced study of specific periods, authors, and/or topics or prose writing, involving extensive readings and discussions of appropriate primary and secondary materials. Repeatable to a maximum of 9 cr hrs.			
<b>8891</b>	<b>Seminar in Hebrew Studies</b>	<b>G</b>	<b>3</b>
Intensive investigation of a selected topic or problem in Hebrew linguistics, philology, literature, or literary culture. Repeatable to a maximum of 12 cr hrs.			

## Hindi

<b>1101</b>	<b>Elementary Hindi I</b>	<b>U</b>	<b>4</b>
Study of Hindi language, with appropriate cultural background; development of listening, reading, speaking, and writing. Closed to native speakers of the language. This course is available for EM credit. GE for lang course.			
<b>1102</b>	<b>Elementary Hindi II</b>	<b>U</b>	<b>4</b>
Continued study of Hindi language, with appropriate cultural background; development of listening, reading, speaking, and writing. Prereq: 1101. Not open to students with credit for 102. GE for lang course.			
<b>1103</b>	<b>Intermediate Hindi I</b>	<b>U</b>	<b>4</b>
Continued study of Hindi language, with appropriate cultural background; development of listening, reading, speaking, and writing. Prereq: 1102. This course is available for EM credit. GE for lang course.			
<b>2104</b>	<b>Intermediate Hindi II</b>	<b>U</b>	<b>3</b>
Continued study of Hindi language, with appropriate cultural background; development of listening, reading, speaking, and writing. Prereq: 1103.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 10</b>
Course topics may vary on subjects not otherwise covered by NELC courses. Prereq: Permission of instructor or department. Repeatable to a maximum of 15 cr hrs or 5 completions.			

## History

<b>1101</b>	<b>Latin American History to 1825</b>	<b>U</b>	<b>3</b>
Latin American political, social, economic, and cultural history from Pre-Columbian times to independence (1825) focusing on imperialism, religion, minorities, war, and rebellion. Prereq or concur: English 1110.xx. GE historical study and diversity global studies course.			
<b>1102</b>	<b>Latin American History since 1825</b>	<b>U</b>	<b>3</b>
Latin American political, social, economic, and cultural history from independence (1825) to the present focusing on neo-colonialism, instability, underdevelopment, militarism, and minorities. Prereq or concur: English 1110.xx. GE historical study and diversity global studies course.			
<b>1151</b>	<b>American History to 1877</b>	<b>U</b>	<b>3</b>
The political, constitutional, social, and economic development of the United States from the colonial period through the era of Reconstruction. Prereq or concur: English 1110.xx. Not open to students with credit for 1150 or 2001. GE historical study course. This course is available for EM credit.			

## 234 History

<b>1152</b>	<b>American History since 1877</b>	<b>U</b>	<b>3</b>
The political, constitutional, social and economic development of the United States from the end of Reconstruction to the present. Prereq or concur: English 1110.xx. Not open to students with credit for 1150 or 2002. GE historical study course. This course is available for EM credit.			
<b>1194</b>	<b>Introductory Undergraduate Group Studies</b>	<b>U</b>	<b>3</b>
The investigation of particular problems in various fields of history. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx. Repeatable to a maximum of 18 or hrs.			
<b>1211</b>	<b>European History I</b>	<b>U</b>	<b>3</b>
Ancient civilizations (Near East, Greece, Rome); barbarian invasions; medieval civilizations (Byzantium, Islam, Europe); Renaissance and Reformation. Prereq or concur: English 1110.xx. Not open to students with credit for 1210, 2201, 2201H, 2202, 2203, or 2205. This course is available for EM credit. GE historical study and diversity global studies course.			
<b>1212</b>	<b>European History II</b>	<b>U</b>	<b>3</b>
Political, scientific, and industrial revolutions; nationalism; the two World Wars; the decline of empires; the Cold War. Prereq or concur: English 1110.xx. Not open to students with credit for 1210, 2203, 2204. This course is available for EM credit. GE historical study and diversity global studies course.			
<b>1681</b>	<b>World History to 1500</b>	<b>U</b>	<b>3</b>
Comparative survey of the world's major civilizations and their interconnections from the beginnings of human civilization through 1500. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 181 or 2641. This course is available for EM credit. GE historical study and diversity global studies course.			
<b>1682</b>	<b>World History from 1500 to the Present</b>	<b>U</b>	<b>3</b>
Survey of the human community, with an emphasis on its increasing global integration, from the first European voyages of exploration through the present. Prereq or concur: English 1110.xx., or permission of instructor. Not open to students with credit for 182 or 2642. This course is available for EM credit. GE historical study and diversity global studies course.			
<b>1911</b>	<b>Climate Change: Mechanisms, Impacts, and Mitigation</b>	<b>U</b>	<b>4</b>
Examination of the basic science of climate change, of the ability to make accurate predictions of future climate, and of the implications for global sustainability by combining perspectives from the physical sciences, the biological sciences, and historical study. Team-taught with faculty members in EarthSc and EEOB. Prereq: Not open to students with credit for EarthSc 1911 or EEOB 1911. GE historical study and nat sci bio and nat sci phys course. Cross-listed in EarthSc and EEOB.			
<b>2001</b>	<b>Launching America</b>	<b>U</b>	<b>3</b>
An intermediate-level approach to American history in its wider Atlantic context from the late Middle Ages to the era of Civil War and Reconstruction. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1151 (151). GE historical study and diversity soc div in the US course.			
<b>2001H</b>	<b>Launching America</b>	<b>U</b>	<b>3</b>
Studies American society from earliest times to the abandonment of Reconstruction policies in 1877. Students will study the relation of structural changes in American society to the development of radical ideology, political institutions, and culture. Prereq or concur: Honors standing, and English 1110.xx; or permission of instructor. Not open to students with credit for 2001. GE historical study and diversity soc div in the US course.			
<b>2002</b>	<b>Making America Modern</b>	<b>U</b>	<b>3</b>
A rigorous, intermediate-level history of modern U.S. in the world from the age of industrialization to the age of globalization. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1152. GE historical study and diversity soc div in the US course.			
<b>2002H</b>	<b>Making America Modern</b>	<b>U</b>	<b>3</b>
Examines twentieth century American history in a global perspective, with special emphasis on the themes of industrial, military, and global expansion, as well as the expansion of civil and political rights of the American people. Prereq or concur: Honors standing, and English 1110.xx; or permission of instructor. Not open to students with credit for 2002. GE historical study and diversity soc div in the US course.			
<b>2010</b>	<b>History of American Capitalism</b>	<b>U</b>	<b>3</b>
Study of the evolution of "American Capitalism" from pre-capitalist economies of the medieval period to the early 21st century. Prereq or concur: English 1110.xx. Not open to students with credit for 387. GE historical study course.			
<b>2015</b>	<b>History of American Criminal Justice</b>	<b>U</b>	<b>3</b>
The history of crime, criminal law, law enforcement, prisons, and juvenile courts. Prereq or concur: English 1110.xx. Not open to students with credit for 375. GE historical study course.			

<b>2040</b>	<b>History of Agriculture and Rural America</b>	<b>U</b>	<b>3</b>
This course is a broad survey of the economic, social, and political history of agriculture and the countryside from the pre-Columbian period to the present. The course focuses on labor, abundance, political activism, public policy, and technology, and traces their interactions and changes over time. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>2065</b>	<b>Colonialism at the Movies: American History in Film</b>	<b>U</b>	<b>3</b>
Explores historical treatment of Native/European contact, colonization, and key events and issues in American history in film. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>2066</b>	<b>History of Medicine in Film</b>	<b>U</b>	<b>3</b>
Examines portrayals of physicians in American film over the past seventy-five years, giving particular attention to what popular films can say about the cultural images of physicians and medicine in American society. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>2070</b>	<b>Introduction to Native American History</b>	<b>U</b>	<b>3</b>
History of Native Americans from pre-contact times to the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 368.01. GE historical study and diversity soc div in the US course.			
<b>2071</b>	<b>American Indian History of the U.S. Midwest</b>	<b>U</b>	<b>3</b>
Native American history in Great Lakes and Ohio Valley regions from ancient times to the present, including moundbuilders, fur trade, removal, reservations, urbanization, contemporary issues. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>2075</b>	<b>Introduction to U.S. Latino/a History</b>	<b>U</b>	<b>3</b>
Survey of Latinos/Latinas and their history in the United States from Spanish colonial period to present. Prereq or concur: English 1110.xx. Not open to students with credit for 324. GE historical study and diversity soc div in the US course.			
<b>2079</b>	<b>Asian American History</b>	<b>U</b>	<b>3</b>
A survey of how Asian immigrants, their American-born children, and international relations with Asia have shaped U.S. History. Prereq or concur: English 1110.xx. Not open to students with credit for 346. GE cultures and ideas and historical study and diversity soc div in the US course.			
<b>2080</b>	<b>African American History to 1877</b>	<b>U</b>	<b>3</b>
The study of the African American experience in America from arrival through the era of Reconstruction, focusing on slavery, resistance movements, and African American culture. Prereq or concur: English 1110.xx. Not open to students with credit for 323.01 or AfAmAsT 2080. GE historical study course. Cross-listed in AfAmAsT.			
<b>2081</b>	<b>African American History from 1877</b>	<b>U</b>	<b>3</b>
The study of the African American experience in the United States from the era of Reconstruction through the present. Prereq or concur: English 1110.xx. Not open to students with credit for 323.02 or AfAmAsT 2081. GE historical study course. Cross-listed in AfAmAsT.			
<b>2100</b>	<b>Introduction to the Spanish Atlantic World</b>	<b>U</b>	<b>3</b>
Introductory survey of the Spanish Empire in the Americas to 1825. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2105</b>	<b>Latin America and the World</b>	<b>U</b>	<b>3</b>
Latin America's relationship with the World since independence (1825) focusing on cases of direct and indirect U.S. intervention as well as European influences and globalization. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2110</b>	<b>Introduction to Native American Peoples from Mesoamerica</b>	<b>U</b>	<b>3</b>
Introductory survey of the Native American peoples from Mesoamerica (contemporary Guatemala, Honduras, Southern Mexico) from pre-colonial times to the present. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2111</b>	<b>Introduction to Native American People of the Andes</b>	<b>U</b>	<b>3</b>
Introductory survey of the history of the Native American peoples of the Andes from the Pre-Columbian period to the present. Prereq or concur: English 1110.xx. Not open to students with credit for 368.02. GE historical study course.			
<b>2115</b>	<b>Women and Gender in Latin America</b>	<b>U</b>	<b>3</b>
Women, gender relations, reproductive rights, and women's response to the impact of religion and the state in Latin America from the Conquest to the present. Prereq or concur: English 1110.xx. Not open to students with credit for 533.06. GE historical study course.			

## History 235

<b>2120</b>	<b>Revolutions and Social Movements in Modern Latin America</b>	<b>U</b>	<b>3</b>
Latin American history from independence (1825) to the present focusing on revolutions, dictatorships, labor, political, and social movements, women, and indigenous populations. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2125</b>	<b>The History of Latin America Through Film</b>	<b>U</b>	<b>3</b>
Latin American history from the pre-colonial era to the present as depicted in film, including the analysis of colonialism, revolutions, society, women, and current events. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2194</b>	<b>Intermediate Undergraduate Group Studies</b>	<b>U</b>	<b>3</b>
The investigation of particular problems in various fields of history. Prereq or concur: English 1110.xx. Repeatable to a maximum of 18 or hrs or 6 completions.			
<b>2201</b>	<b>Ancient Greece and Rome</b>	<b>U</b>	<b>3</b>
Comparative historical analysis of ancient Mediterranean civilizations of the Near East, Greece, and Rome from the Bronze Age to Fall of Rome. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1211 or 301. GE historical study course.			
<b>2202</b>	<b>Introduction to Medieval History</b>	<b>U</b>	<b>3</b>
Survey of medieval history from the late Roman Empire to the early sixteenth century. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1211. GE historical study and diversity global studies course.			
<b>2203</b>	<b>Introduction to Early Modern Europe</b>	<b>U</b>	<b>3</b>
A survey of European history from the Black Death to the Congress of Vienna. This course examines social, cultural, religious, political and economic developments from the mid fourteenth to the early nineteenth century. Sometimes taught at distance. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1211 or 1212. GE historical study and diversity global studies course.			
<b>2204</b>	<b>Modern European History</b>	<b>U</b>	<b>3</b>
Examination of selected themes from the history of Modern Europe from the French Revolution to the Present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1212. GE historical study and diversity global studies course.			
<b>2204H</b>	<b>Modern European History</b>	<b>U</b>	<b>3</b>
Examination of selected themes from the history of Modern Europe from the French Revolution to the present. Prereq or concur: Honors standing and English 1110.xx, or permission of instructor. Not open to students with credit for 2204. GE historical study and diversity global studies course.			
<b>2206</b>	<b>History of Paris, Origins to the Present</b>	<b>U</b>	<b>3</b>
An introductory survey course on the history of Paris from its earliest human settlement to the present day. This course will explore the history of the people and events that have shaped the Paris we know today. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>2210</b>	<b>Classical Archaeology</b>	<b>U</b>	<b>3</b>
Introduction to the principles, methods, and history of archaeological investigation in the ancient Greek and Roman world, illustrated through a selection of major classical sites. Prereq or concur: English 1110.xx. Not open to students with credit for 306, Clas 2301 (240), or HistArt 2301 (306). GE cultures and ideas and historical study and diversity global studies course. Cross-listed in Clas 2301 and HistArt 2301.			
<b>2211</b>	<b>The Ancient Near East</b>	<b>U</b>	<b>3</b>
The ancient history of Mesopotamia, Egypt, Anatolia, Persia, Israel, and the Levant to the establishment of the Persian Empire. Prereq or concur: English 1110.xx. Not open to students with credit for 500. GE historical study course.			
<b>2213</b>	<b>The Ancient Mediterranean City</b>	<b>U</b>	<b>3</b>
Cities in the ancient Near East, Greece, and Rome, with an emphasis on their physical form and historical importance. Prereq or concur: English 1110.xx. Not open to students with credit for 504.02. GE historical study course.			
<b>2220</b>	<b>Introduction to the History of Christianity</b>	<b>U</b>	<b>3</b>
Introduces students to the historical study of Christianity as a religious tradition. Sometimes this course is taught in a distance only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2221</b>	<b>Introduction to the New Testament: History and Literature</b>	<b>U</b>	<b>3</b>
Introductory survey of the New Testament writings in translation, including non-canonical sources of the early Christian movement. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for Clas 2221, 2221E, 2401, or 2401E. GE for lit and historical study course. Cross-listed in Clas.			

<b>2221E</b>	<b>Introduction to the New Testament: History and Literature</b>	<b>U</b>	<b>3</b>
Introductory survey of the New Testament writings in translation, including non-canonical sources of the early Christian movement. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2221, Clas 2221, 2221E, 2401, or 2401E. GE lit and historical study course. Cross-listed in Clas.			
<b>2231</b>	<b>The Crusades</b>	<b>U</b>	<b>3</b>
Examines the various European crusades - in the Holy Land, Spain, Eastern Europe, and southern France - from their origins to the late 15th century. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2240</b>	<b>Elizabethan England</b>	<b>U</b>	<b>3</b>
The social, political, cultural and religious history of England during the reign of Queen Elizabeth I, 1558-1603, including the darker side of the Golden Age. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2250</b>	<b>Empires and Nations in Western Europe, 1500 - Present</b>	<b>U</b>	<b>3</b>
Comparative study of the Modern European Overseas Empires from the "age of discovery" to the postcolonial present. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2251</b>	<b>Empires and Nations in Eastern Europe, 1500-Present</b>	<b>U</b>	<b>3</b>
Comparative study of the Ottoman, Habsburg, and Russian empires, and their successor states in eastern Europe, from 1500 to the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 519.03. GE historical study and diversity global studies course.			
<b>2270</b>	<b>Love in the Modern World</b>	<b>U</b>	<b>3</b>
History of love in philosophy, literature, and art, focusing on the 19th and 20th centuries. Prereq: English 1110.xx or permission of instructor. Not open to students with credit for 3278 or 528. GE historical study course.			
<b>2271</b>	<b>Happiness in History and Practice</b>	<b>U</b>	<b>3</b>
This class uses the framework of the history of emotions to examine the intellectual history of the emotion of happiness in Europe from Ancient Greece to the present, particularly the ways it emerged, evolved, and impacted various historical societies, as well as its indications of social diversity. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2275</b>	<b>Children and Childhood in the Western World</b>	<b>U</b>	<b>3</b>
History of children, childhood and youth in the Western World from Antiquity to the present. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2280</b>	<b>Introduction to Russian History</b>	<b>U</b>	<b>3</b>
Selected topics introducing students to the history of Russian politics, society, and culture. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 336. GE historical study and diversity global studies course.			
<b>2301</b>	<b>African Peoples and Empires in World History</b>	<b>U</b>	<b>3</b>
A thematic course focusing on African world history, empire building, and commercial and cultural links across the Atlantic, the Indian Ocean, and the Mediterranean worlds before and during the Atlantic slave trade. Prereq or concur: English 1110.xx. GE historical study course.			
<b>2302</b>	<b>History of Modern Africa, 1800 - 1960s</b>	<b>U</b>	<b>3</b>
Thematic survey of African history from 1800 to the 1960s. Prereq or concur: English 1110.xx. GE historical study course.			
<b>2303</b>	<b>History of Contemporary Africa, 1960 - present</b>	<b>U</b>	<b>3</b>
Africa from independence to the present. Contemporary African societies, cultures, economics, and politics from independence to the present. Prereq or concur: English 1110.xx. GE historical study course.			
<b>2350</b>	<b>Islam, Politics, and Society in History</b>	<b>U</b>	<b>3</b>
Introduction to the manner in which Islam has interacted with politics in the Middle East and vicinity from the rise of Islam through the present. Prereq or concur: English 1110.xx. Not open to students with credit for 340. GE historical study course.			
<b>2351</b>	<b>Early Islamic Society, 610-1258</b>	<b>U</b>	<b>3</b>
Origins and early development of selected fundamental Islamic institutions in their historical and cultural context. Prereq or concur: English 1110.xx. Not open to students with credit for 540.01. GE historical study course.			

## 236 History

<b>2352</b>	<b>The Ottoman Empire, 1300-1800</b>	<b>U</b>	<b>3</b>
Studies the political, economic, social, and cultural power of the Ottoman Empire from its origins, through the highpoint of its geopolitical power in the 16th century, to its further evolution through the opening of the period of European imperialism, and will examine the Ottoman Empire as a case from which to study the developmental dynamics of patrimonial sociopolitical systems. Prereq: English 1110.xx or permission of instructor. Not open to students with credit for 3356 or 540.03. GE historical study course.			
<b>2353</b>	<b>The Middle East Since 1914</b>	<b>U</b>	<b>3</b>
An introductory study of the political, social and cultural history and evolution of Islamic civilization since 1914. The course will examine the impact of outside power on the Middle East, as well as the region's responses to modernity; political, socioeconomic and cultural change; ideological strategy; Islamic identity and globalization; and changes in media of communication. Prereq: English 1110.xx or permission of instructor. Not open to students with credit for 3358 or 540.05. GE historical study course.			
<b>2375</b>	<b>Islamic Central Asia</b>	<b>U</b>	<b>3</b>
Introductory survey of the political, cultural, religious, and economic history of Islamic central Asia from the eighth-century Arab conquests to the nineteenth-century Russian colonial era. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 343. GE historical study and diversity global studies course.			
<b>2392</b>	<b>Colonial India</b>	<b>U</b>	<b>3</b>
South Asia during the colonial period, from the arrival of Vasco da Gama in 1498 until independence and partition of India and Pakistan in 1947. Prereq or concur: English 1110.xx. Not open to students with credit for 543.03. GE historical study course.			
<b>2393</b>	<b>Contemporary India and South Asia</b>	<b>U</b>	<b>3</b>
The political, social, economic, and cultural history of contemporary India and the South Asian subcontinent, focusing on India, Pakistan, and Bangladesh. Prereq or concur: English 1110.xx. Not open to students with credit for 543.04. GE historical study course.			
<b>2401</b>	<b>History of East Asia in the Pre-Modern Era</b>	<b>U</b>	<b>3</b>
Introduction to societies and cultures of pre-modern China, Korea, and Japan; the East Asian geographical and cultural unit. Prereq or concur: English 1110.xx. GE historical study and diversity global studies course.			
<b>2402</b>	<b>History of East Asia in the Modern Era</b>	<b>U</b>	<b>3</b>
Introduction to the transformation of societies and cultures of modern China, Korea, and Japan from the 17th century to the present. Prereq or concur: English 1110.xx. Not open to students with credit for 142. GE historical study and diversity global studies course.			
<b>2450</b>	<b>Ancient and Medieval Jewish History, 300 BCE-1100 CE</b>	<b>U</b>	<b>3</b>
Introduction to the history of Jewish communities, religion, and culture in the Near East from the Greco-Roman period to the First Crusade. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 330.01 or JewshSt 2450. GE cultures and ideas and historical study and diversity global studies course. Cross-listed in JewshSt.			
<b>2451</b>	<b>Medieval and Early Modern Jewish History, 700-1700 CE</b>	<b>U</b>	<b>3</b>
Introduction to the history of Jewish communities, religion, and culture in Europe during the Medieval and Early Modern periods. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 330.01, 330.02, or JewshSt 2451. GE historical study course. Cross-listed in JewshSt.			
<b>2452</b>	<b>Modern Jewish History 1700-Present</b>	<b>U</b>	<b>3</b>
Study of the history of Jewish communities and Judaism from the early modern period to the early 21st century. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 330.02 or JewshSt 2452. GE historical study course. Cross-listed in JewshSt.			
<b>2453</b>	<b>History of Zionism and Modern Israel</b>	<b>U</b>	<b>3</b>
The history of Zionist movement and the modern state of Israel from beginnings to present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 334 or JewshSt 2453. GE historical study course. Cross-listed in JewshSt.			
<b>2454</b>	<b>History of Anti-Semitism</b>	<b>U</b>	<b>3</b>
Study of the development of anti-Semitism, the history of anti-Semitic ideologies and practices, and different Jewish responses to anti-Semitism over time. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 333 or JewshSt 2454. GE historical study course. Cross-listed in JewshSt.			
<b>2455</b>	<b>Jews in American Film</b>	<b>U</b>	<b>3</b>
A study of how modern Jews appear in film compared with historical reality. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 332 or JewshSt 2455. GE historical study course. Cross-listed in JewshSt.			
<b>2475</b>	<b>History of the Holocaust</b>	<b>U</b>	<b>3</b>
Study of the state-sponsored murder of millions of Jews and non-Jews by the Nazis and their collaborators during World War II. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for JewshSt 2475. GE historical study course. Cross-listed in JewshSt.			

<b>2500</b>	<b>20th Century International History</b>	<b>U</b>	<b>3</b>
Examines international political, economic, and military relations from the origins of World War I through the break up of the Soviet Union. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2550</b>	<b>History of War</b>	<b>U</b>	<b>3</b>
A survey of the main concepts and issues involved in the study of war in world perspective, using case studies from prehistoric times to the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 380. GE historical study and diversity global studies course.			
<b>2610</b>	<b>Introduction to Women and Gender in the U.S.</b>	<b>U</b>	<b>3</b>
Survey of women and gender from pre-European settlement to present, with particular attention to differences among women. Prereq or concur: English 1110.xx. Not open to students with credit for 325. GE historical study and diversity soc div in the US course.			
<b>2610H</b>	<b>Introduction to Women and Gender in the U.S.</b>	<b>U</b>	<b>3</b>
Survey of women and gender from pre-European settlement to present, with particular attention to differences among women. Prereq: Honors standing, or permission of instructor. Prereq or concur: English 1110.xx. Not open to students with credit for 325 or 325H. GE historical study and diversity soc div in the US course.			
<b>2620</b>	<b>Women Changing the World: Histories of Activism and Struggle</b>	<b>U</b>	<b>3</b>
History of women's activism in global perspective. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2630</b>	<b>History of Modern Sexualities</b>	<b>U</b>	<b>3</b>
In-depth analysis of particular topics in the history of modern sexualities throughout the world; topic varies by semester. Prereq or concur: English 1110.xx. Not open to students with credit for 326. GE historical study course.			
<b>2641</b>	<b>Global History to 1500</b>	<b>U</b>	<b>3</b>
Examines the major issues that have shaped the human experience from the beginnings of human civilization (ca. 3500 B.C.E.) to ca. 1500 C.E., through comparative study of civilizations within the context of religion, trade, technology, art, culture, and gender relations. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1681 (181). GE historical study and diversity global studies course.			
<b>2642</b>	<b>Global History 1500 to Present</b>	<b>U</b>	<b>3</b>
Examines the major issues that have shaped the human experience of various regions since 1500 C.E. through comparative study of civilizations within the context of religion, trade, technology, art, culture, industrialism, imperialism, revolution, and gender relations. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 1682 (182). GE historical study and global diversity studies course.			
<b>2650</b>	<b>The World since 1914</b>	<b>U</b>	<b>3</b>
Global perspective on major forces that shaped the world since 1914. Provides students with factual knowledge and a critical interpretive framework for responsible global citizenship. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2651</b>	<b>World History before the Modern Age</b>	<b>U</b>	<b>3</b>
A thematic approach to exploring selected major processes and events that shaped human experience between the Stone Age and 1750. Specific topics and content can vary. Prereq or concur: English 1110, or equiv. Not open to students with credit for 1681. GE historical study and diversity global studies course.			
<b>2675</b>	<b>The Indian Ocean: Communities and Commodities in Motion</b>	<b>U</b>	<b>3</b>
This course examines the history of the Indian Ocean world, a dynamic inter-regional arena that touches three continents. The course will explore historical processes as they cross traditional boundaries between geographic regions. With its focus on communities and commodities, this course will expose students to the continuities and change that have created the modern Indian Ocean world. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2680</b>	<b>It's The End of The World!: Apocalypticism in Christianity, Judaism, and Islam</b>	<b>U</b>	<b>3</b>
This course will explore how the end of the world-generally understood to be preceded by enormous wars and disasters as well as the judgment of people and a reckoning of their deeds-was imagined over two millennia by Christians, Jews, and Muslims. The course will cover primary and secondary historical works, as well as fictional bestsellers, about the apocalypse from around the world. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for NELC 2680. Cross-listed in NELC. GE historical study and diversity global studies course.			

## History 237

<b>2700</b>	<b>Global Environmental History</b>	<b>U</b>	<b>3</b>
Global overview of the ecology of the human condition in past time, stressing climate change, earth systems, technology, energy, demography, and human cultural-economic revolutions. Prereq or concur: English 1110.xx. GE historical study and soc sci human, nat, and econ resources and diversity global studies course.			
<b>2701</b>	<b>History of Technology</b>	<b>U</b>	<b>3</b>
Survey of the history of technology in global context from ancient times. Prereq or concur: English 1110.xx. Not open to students with credit for 362. GE historical study course.			
<b>2702</b>	<b>Food in World History</b>	<b>U</b>	<b>3</b>
Survey of the history of food, drink, diet and nutrition in a global context. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2703</b>	<b>History of Public Health, Medicine and Disease</b>	<b>U</b>	<b>3</b>
Survey of the history of public health, disease and medicine in a global context. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2704</b>	<b>Water: A Human History</b>	<b>U</b>	<b>3</b>
History of human use and understandings of water from ancient to modern times, with case studies taken from different geographic locations. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>2705</b>	<b>The History of Medicine in Western Society</b>	<b>U</b>	<b>3</b>
Explores the changing intellectual, economic, institutional and cultural relationships that have characterized medicine in the Western world from antiquity to the present, and examines individual roles and trends in the education of practitioners, locations of healing, and expectations that people had of medicine as ideas about the body and illness shifted. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>2710</b>	<b>History of the Car</b>	<b>U</b>	<b>3</b>
The car has shaped the world we live in today. Ideas of capitalism, technology, and consumerism are inherently linked to its creation and expansion in modern society. This course will examine the development of the car in the 20th century, first in the United States and then how its global expansion has come to define global society today. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>2720</b>	<b>Big History</b>	<b>U</b>	<b>3</b>
"Big History" attempts to explain history at the very largest scales in the widest perspectives, exploring theories of how the universe, planet, life, and humanity came to be. Students will work to understand the essential state of knowledge about cosmic, earth, evolutionary, and human history. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>2750</b>	<b>Natives and Newcomers: Immigration and Migration in U.S. History</b>	<b>U</b>	<b>3</b>
General survey of (im)migration history in the U.S. from precolonial times to the present. Topics include cultural contact, economic relations, citizenship, politics, family, and sexuality. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 2750H, 2750E, WGSSt 2750, or 2750H. GE historical study and diversity soc div in the US course. Cross-listed in WGSSt.			
<b>2750E</b>	<b>Natives and Newcomers: Immigration and Migration in U.S. History</b>	<b>U</b>	<b>3</b>
General survey of (im)migration history in the U.S. from precolonial times to the present. Topics include cultural contact, economic relations, citizenship, politics, family and sexuality. Prereq: Honors standing, or permission of instructor. Prereq or concur: English 1110.xx. Not open to students with credit for 322, 322H, or WGSSt 2750H (332H). GE historical study and diversity soc div in the US course.			
<b>2752</b>	<b>Social Reform Movements in U.S. History</b>	<b>U</b>	<b>3</b>
Explores organized movements for social change from 1830 to 1970s, including antislavery, women's rights, temperance, utopias, Populists, Progressives, African-American, American Indian and Chicano rights. Sometimes this course offered at distance. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>2797.01</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 6</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq or concur: English 1110.xx., or permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions.			
<b>2797.02</b>	<b>The Western Tradition and Contemporary Issues: From Ancient Greece to the Global Present</b>	<b>U</b>	<b>3</b>
Participating students will have the opportunity to experience, and gain a greater appreciation for, the significance of the Western tradition through Ionian University faculty-led overviews of the various historical eras, beginning with ancient Greece and ending in the modern era, and group excursions to historical sites. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			

<b>2798</b>	<b>Study Tour</b>	<b>U</b>	<b>1 - 6</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Prereq or concur: English 1110.xx. Not open to students with credit for 698.01 or 698.02. Repeatable to a maximum of 27 cr hrs or 9 completions.			
<b>2800</b>	<b>Introduction to the Discipline of History</b>	<b>U</b>	<b>3</b>
Investigation of the methods and analytical approaches historians use to understand the past. Prereq or concur: English 1110.xx.			
<b>2800E</b>	<b>Introduction to the Discipline of History</b>	<b>U</b>	<b>3</b>
Investigation of the methods and analytical approaches historians use to understand the past. Prereq: Honors standing, or permission of instructor. Prereq or concur: English 1110.xx. Not open to students with credit for 2800 (398) or 2800H (398H).			
<b>2800H</b>	<b>Introduction to the Discipline of History</b>	<b>U</b>	<b>3</b>
Investigation of the methods and analytical approaches historians use to understand the past. Prereq: Honors standing, or permission of instructor. Prereq or concur: English 1110.xx. Not open to students with credit for 398H.			
<b>3001</b>	<b>American Political History to 1877</b>	<b>U</b>	<b>3</b>
The origins and development of American politics from early modern origins and national revolution to the era of Civil War and Reconstruction. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>3002</b>	<b>U.S. Political History Since 1877</b>	<b>U</b>	<b>3</b>
History of American political institutions, ideas, and culture from Reconstruction to the present. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>3003</b>	<b>American Presidential Elections</b>	<b>U</b>	<b>3</b>
History of presidential campaigns and elections from Washington to the present. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course .			
<b>3005</b>	<b>The United States Constitution and American Society to 1877</b>	<b>U</b>	<b>3</b>
Advanced study of U.S. constitutional history from the colonial charters through Reconstruction after the Civil War. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3006</b>	<b>The United States Constitution and American Society since 1877</b>	<b>U</b>	<b>3</b>
Advanced study of U.S. constitutional history from Reconstruction to the present. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3010</b>	<b>Colonial North American to 1763</b>	<b>U</b>	<b>3</b>
The history of colonial and native societies in North America from first contacts to the eve of the imperial crisis. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 556. GE historical study course.			
<b>3011</b>	<b>The American Revolution and the New Nation</b>	<b>U</b>	<b>3</b>
Analysis of the political, cultural, social, military, and economic changes that led to revolution and creation of the republic. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 577.01. GE historical study course.			
<b>3012</b>	<b>Antebellum America</b>	<b>U</b>	<b>3</b>
An examination of American history from the nation-building of the age of Jefferson and Jackson to the sectional crisis over slavery. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 557.02. GE historical study course.			
<b>3013</b>	<b>Civil War and Reconstruction</b>	<b>U</b>	<b>3</b>
The causes, character, and consequences of America's inter-sectional war and the post-war settlement. Prereq: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3014</b>	<b>Gilded Age to Progressive Era, 1877-1920</b>	<b>U</b>	<b>3</b>
Advanced study of U.S. social, political, cultural, foreign policy history from 1877-1920: Industrialization; immigration; urbanization; populism; Spanish-American War; progressivism; WWI. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 564. GE historical study and diversity soc div in the US course.			
<b>3015</b>	<b>From the New Era to the New Frontier, 1921-1963</b>	<b>U</b>	<b>3</b>
Advanced study of U.S. social, political, cultural, foreign policy history, 1921 to 1963, covering New Era, New Deal, WWII, Cold War, Eisenhower Republicanism, New Frontier. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 565. GE historical study course.			

## 238 History

<b>3016</b>	<b>The Contemporary U.S. since 1963</b>	<b>U</b>	<b>3</b>
Advanced study U.S. political, economic, social, and cultural changes since 1963: political polarization; post-industrial economy/consumer economy; civil rights, feminism, environmentalism, Vietnam, detente, and globalization. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 566. GE historical study course.			
<b>3017</b>	<b>The Sixties</b>	<b>U</b>	<b>3</b>
Examination of postwar America's pivot point, focusing on civil rights; liberal, radical, and conservative politics; sweeping social, cultural, and economic change; and the Vietnam War. Prereq: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3020</b>	<b>19th Century American Ideas</b>	<b>U</b>	<b>3</b>
Urbanism, evangelicalism, slavery, Darwinism, Modernism, Anti-modernism. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 579.01. GE historical study course.			
<b>3030</b>	<b>History of Ohio</b>	<b>U</b>	<b>3</b>
Survey of economic, social, political development of the geographic area that became Ohio from Native Americans to present. Prereq: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3032</b>	<b>History of the U.S. West</b>	<b>U</b>	<b>3</b>
The social, cultural, and economic development of the U.S. West. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 560. GE historical study course.			
<b>3040</b>	<b>The American City</b>	<b>U</b>	<b>3</b>
History of the American city (urban-suburban) from colonial times to the early 21st century. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>3045</b>	<b>American Religious History</b>	<b>U</b>	<b>3</b>
An examination of religious history of the United States from colonial era to the present. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 578. GE historical study course.			
<b>3070</b>	<b>Native American History from European Contact to Removal, 1560-1820</b>	<b>U</b>	<b>3</b>
Major issues and events in Native American history from before the European invasion and colonization through the early 1820s. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 568.01. GE historical study course.			
<b>3071</b>	<b>Native American History from Removal to the Present</b>	<b>U</b>	<b>3</b>
Covers major events in American Indian history from 1820s to present, including removal, reservations, cultural adaptation, federal policies, self-determination, activism, and contemporary issues. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 568.02. GE historical study and diversity soc diversity in the US course.			
<b>3075</b>	<b>Mexican American Chicano/a History</b>	<b>U</b>	<b>3</b>
History of people of Mexican descent and their presence in the United States from Spanish colonial times to contemporary period. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for 577.01 or 577.02. GE historical study and diversity soc div in the US course.			
<b>3080</b>	<b>Slavery in the United States</b>	<b>U</b>	<b>3</b>
The African American experience in slavery, focusing on the rise of the slave trade, slavery in the colonial and antebellum eras, the Civil War, and abolition. Prereq or concur: English 1110.xx; or permission of instructor. Not open to students with credit for 559 or AfAmAst 3080. GE historical study course. Cross-listed in AfAmAst.			
<b>3082</b>	<b>Black Americans During the Progressive Era</b>	<b>U</b>	<b>3</b>
History and experiences of black Americans during the period best known in American History as the Progressive Era. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for AfAmAst 3082. GE historical study and diversity soc div in the US course. Cross-listed in AfAmAst.			
<b>3083</b>	<b>Civil Rights and Black Power Movements</b>	<b>U</b>	<b>3</b>
Examines the origins, evolution, and outcomes of the African American freedom struggle, focusing on the Civil Rights and Black Power movements. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for AfAmAst 3083. GE historical study and diversity soc div in the US course. Cross-listed in AfAmAst.			
<b>3085</b>	<b>African American History Through Contemporary Film</b>	<b>U</b>	<b>3</b>
Uses contemporary film to explore the history of African American life, culture, politics, and resistance. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			

<b>3086</b>	<b>Black Women in Slavery and Freedom</b>	<b>U</b>	<b>3</b>
Traces the experiences and struggles of African American women from slavery through the Civil Rights/Black Power era. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for AfAmAst 3086. GE historical study and diversity soc div in the US course. Cross-listed in AfAmAst.			
<b>3089</b>	<b>Studies in African American History</b>	<b>U</b>	<b>3</b>
Selected topics in African American history from the origins of slavery to the present. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 555.01, 555.02, or AfAmAst 3089. Repeatable to a maximum of 12 cr hrs. GE historical study course. Cross-listed in AfAmAst.			
<b>3090</b>	<b>Comparative Slavery</b>	<b>U</b>	<b>3</b>
Different forms of slavery and other forms of unfree labor in different cultures, focusing mainly on Europe, the Americas, and Africa. Prereq: English 1110.xx and any History 2000-level course; or permission of instructor. Not open to students with credit for 588 or AfAmAst 588. GE historical study course.			
<b>3100</b>	<b>Colonial Latin America</b>	<b>U</b>	<b>3</b>
Mayan, Aztec, and Incan Empires; the Spanish and Portuguese conquests and the transplanting of Iberian institutions; the Baroque period; the Bourbon Century and the Enlightenment. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 533.01. GE historical study course.			
<b>3105</b>	<b>History of Brazil</b>	<b>U</b>	<b>3</b>
History of Brazil during colonial and independence periods with major emphasis on the 19th and 20th centuries. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 534.02. GE historical study course.			
<b>3106</b>	<b>History of Mexico</b>	<b>U</b>	<b>3</b>
History of Mexico during precolonial, colonial, and independence periods with emphasis on the 19th and 20th centuries. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3191</b>	<b>Historical Internship</b>	<b>U</b>	<b>1 - 4</b>
Internships will provide students with the opportunity to work on historical projects under the supervision of a practicing professional and a professor. Prereq or concur: English 1110.xx, and a CPHR of 3.0 or above, and enrollment in the History major or minor; or permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions.			
<b>3193.01</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 6</b>
Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest. Prereq: English 1110.xx and any History 2000-level course, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>3193.02</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 6</b>
Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest. Prereq: English 1110.xx and any History 2000-level course, and permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>3194</b>	<b>Upper-Level Undergraduate Group Studies</b>	<b>U</b>	<b>3</b>
The investigation of particular problems in various fields of history. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>3210</b>	<b>Archaic Greece</b>	<b>U</b>	<b>3</b>
Survey of Greek history from Neolithic Age (7000-3000 BC) to end of the Archaic Era (700-480 BC). Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 501.01. GE historical study course.			
<b>3211</b>	<b>Classical Greece</b>	<b>U</b>	<b>3</b>
Survey of Greek history during the Classical era (480-320 BC). Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 501.02. GE historical study course.			
<b>3213</b>	<b>Slavery in the Ancient World</b>	<b>U</b>	<b>3</b>
Study of slavery as an institution and ideology of ancient Greece and Rome, including its importance in the ancient family, economy, and culture. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for Clas 3202 or History 3213H. GE for cultures and ideas and historical study course.			
<b>3213H</b>	<b>Slavery in the Ancient World</b>	<b>U</b>	<b>3</b>
Study of slavery as an institution and ideology of ancient Greece and Rome, including its importance in the ancient family, economy, and culture. Prereq or concur: Honors standing, and English 1110.xx; or permission of instructor. GE cultures and ideas and historical study course.			



<b>3214</b>	<b>Women, Gender, and Sexuality in the History of Christianity</b>	<b>U</b>	<b>3</b>
Explores the ways in which women were portrayed in early Christian literature, and the functions of gender (femininity and, to a lesser extent, masculinity) in Christian discourse. Students will consider the roles women played in the early Christian churches and the significance of gender and femininity in early Christian thought and practice. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3215</b>	<b>Sex and Gender in the Ancient World</b>	<b>U</b>	<b>3</b>
Introductory survey of women, gender, and sexual relations in the ancient Mediterranean world, especially Greece and Rome. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit			
<b>3216</b>	<b>War in the Ancient Mediterranean World</b>	<b>U</b>	<b>3</b>
A survey of military history from the late Bronze Age to the fall of the Roman Empire in the West. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 2212 or 504.01. GE historical study and diversity global studies course.			
<b>3218</b>	<b>Paul &amp; His Influence in Early Christianity</b>	<b>U</b>	<b>3</b>
Survey of the life and thought of the apostle Paul in translation, and his influence on the formation of Christianity. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for Clas 3407. GE for lit and historical study course.			
<b>3219</b>	<b>Historical Jesus</b>	<b>U</b>	<b>3</b>
The purpose of this course is to consider the problem of how historical facts and religious persuasion are related where a religion, such as Christianity, lays claim to historical truth through examination of the figure of Jesus. Students will learn about historical methodology and a major religious figure about which there is considerable academic and theological debate. Prereq: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3220</b>	<b>The Rise of the Roman Republic</b>	<b>U</b>	<b>3</b>
An advanced survey of Rome's history from the foundation of the city to the establishment of the Republic's Mediterranean Empire, ca 150 BC. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 503.01. GE historical study course.			
<b>3221</b>	<b>History of Rome: Republic to Empire</b>	<b>U</b>	<b>3</b>
History of Rome: Republic to Empire. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 2212. GE historical study and diversity global studies course.			
<b>3222</b>	<b>The Roman Empire, 69-337 CE</b>	<b>U</b>	<b>3</b>
An advanced survey of Rome's imperial history from the end of the Julio-Claudian dynasty to the death of Constantine. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3223</b>	<b>The Later Roman Empire</b>	<b>U</b>	<b>3</b>
An advanced survey of Rome's history in the fourth, fifth, and sixth centuries with focus on themes of decline, fall, and transformation. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 503.03. GE historical study course.			
<b>3225</b>	<b>Early Byzantine Empire</b>	<b>U</b>	<b>3</b>
History of Byzantium, 600-1453, with emphasis on internal developments, relations with neighbors, the Crusades, the Fall of the City, and the legacy of Byzantium. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 505.01. GE historical study course.			
<b>3226</b>	<b>Later Byzantine Empire</b>	<b>U</b>	<b>3</b>
History of Byzantium, 843-1453, with emphasis on internal developments, the Crusades, the Fall of the City, and legacy of Byzantium. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3227</b>	<b>Gnostics and Other Early Christian Heresies</b>	<b>U</b>	<b>3</b>
Examines the early Christian philosophical movement known as "the Gnostics" whose beliefs, based on the stories of the Bible, Platonist philosophy, and the new revelation of Jesus, shocked other Christians. Sometimes taught at distance. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3229</b>	<b>History of Early Christianity</b>	<b>U</b>	<b>3</b>
A survey of the history of Christianity from its Jewish and Greco-Roman roots to the late sixth century. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 506. GE historical study and diversity global studies course.			
<b>3230</b>	<b>History of Medieval Christianity</b>	<b>U</b>	<b>3</b>
Study of the development of Medieval Christianity from Constantine to the early sixteenth century. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 507. GE historical study course.			

<b>3231</b>	<b>Creating Medieval Monsters: Constructions of the "Other"</b>	<b>U</b>	<b>3</b>
This course examines the development of a persecuting society in medieval Europe and explores the various ways that minorities were demonized (literally turned into "monsters") in the medieval discourse and artwork in order to create a strong sense of unity within Christendom, with a specific focus on Jews, lepers, Muslims, religious non-conformists, sexual nonconformists, and women. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3232</b>	<b>Solving Crime in Medieval Europe</b>	<b>U</b>	<b>3</b>
This course explores the interaction between the development of criminal law and social change in the late medieval period from a comparative perspective, examining primarily the English common law, but also the continental courts of law. Topics such as trial by ordeal; forensic medicine; homicide; sex crimes; clerical criminals; treason; sanctuary; and fear-mongering, will be explored. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3235</b>	<b>Medieval Europe I, 300-1100</b>	<b>U</b>	<b>3</b>
Study of the development of Western European institutions from the fall of the Roman Empire to the eleventh century. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 508.01. GE historical study course.			
<b>3239</b>	<b>Medieval England</b>	<b>U</b>	<b>3</b>
Survey of English history from the Roman conquest to 1485. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 508.03. GE historical study course.			
<b>3240</b>	<b>History of the Italian Renaissance, 1250-1450</b>	<b>U</b>	<b>3</b>
Study of the society, culture, and politics of Italy, from the communal era until the age of humanism, thirteenth to fifteenth century. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 509.01. GE historical study course.			
<b>3242</b>	<b>The Holy Roman Empire (1495-1806)</b>	<b>U</b>	<b>3</b>
The political, social, religious, and economic history of the Holy Roman Empire of the German Nation from 1495 to the fall of the Empire in 1806. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			
<b>3245</b>	<b>The Age of Reformation</b>	<b>U</b>	<b>3</b>
The history of the Protestant, Catholic, and Radical Reformations of 16th and early 17th century Europe. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 511. GE historical study course.			
<b>3246</b>	<b>Tudor and Stuart Britain, 1485-1714</b>	<b>U</b>	<b>3</b>
The social, political, and religious history of England and the British Isles in the age of Renaissance, Reformation, and Revolution. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 514.01. GE historical study course.			
<b>3247</b>	<b>Magic and Witchcraft in Early Modern Europe (1450-1750)</b>	<b>U</b>	<b>3</b>
Investigation of the history of European witchcraft, focusing on intellectual, religious, and social developments and on the great witchcraft trials of the early modern period. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3249</b>	<b>Early-Modern Europe, 1560-1778</b>	<b>U</b>	<b>3</b>
A survey of Europe from the late-sixteenth-century wars of religion to the more secular political conflicts on the eve of the French Revolution. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 512.01. GE historical study course.			
<b>3250</b>	<b>Revolutionary and Napoleonic Europe, 1750-1815</b>	<b>U</b>	<b>3</b>
A survey of European but especially French history from the crisis of the Old Regime to the end of the wars of the French Revolution. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 512.02. GE historical study course.			
<b>3251</b>	<b>History of Europe in the 19th Century</b>	<b>U</b>	<b>3</b>
Major trends and developments in 19th century European history. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 512.03. GE historical study course.			
<b>3252</b>	<b>People on the Move: Migration in Modern Europe</b>	<b>U</b>	<b>3</b>
Study of migration movements in Europe from the age of industrialization to the present. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			

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<b>3253</b>	<b>20th Century Europe to 1950</b>	<b>U</b>	<b>3</b>
Exploration of the major historical events and issues from approximately 1900 to 1950. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. GE historical study course.			
<b>3254</b>	<b>Europe Since 1950</b>	<b>U</b>	<b>3</b>
Europe from Division to Unification. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3260</b>	<b>Britain in the 19th Century</b>	<b>U</b>	<b>3</b>
An introduction to the political, economic, and social history of Britain and the British empire from the eighteenth to early twentieth century. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 514.02. GE historical study course.			
<b>3263</b>	<b>20th Century France at War</b>	<b>U</b>	<b>3</b>
Study of the major political, economic, social, and cultural impact of France's three major wars in the 20th century: World War I, World War II and the Algerian War. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3264</b>	<b>19th Century German History</b>	<b>U</b>	<b>3</b>
Exploration from 1806 to 1914 of the cultural, economic, political, and social history of the peoples and territories included in the German Empire after 1871. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 518.01. GE historical study course.			
<b>3265</b>	<b>20th-Century German History</b>	<b>U</b>	<b>3</b>
Exploration from 1914 to the present of German cultural, economic, political, and social history. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 518.02. GE historical study course.			
<b>3269</b>	<b>Eastern Europe in the 20th Century</b>	<b>U</b>	<b>3</b>
Survey of East European history from World War I to the post-communist era. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3270</b>	<b>History of World War I</b>	<b>U</b>	<b>3</b>
Origins, conduct, and consequences of the First World War in global context. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3273</b>	<b>Modernist Thought &amp; Culture, 1880-1945</b>	<b>U</b>	<b>3</b>
This is a team-taught course that surveys modern Western cultural history and its revolutionary developments in physics, genetics, philosophy, psychiatry, visual art, architecture, music, dance, and literature. The team-teaching format ensures that students will have the opportunity to approach modernist ideas and forms of expression from more than one disciplinary perspective. Prereq: English 1110 and any History 2000-level course, or permission of instructor. Not open to students with credit for English 3273. Cross-listed in English.			
<b>3276</b>	<b>European Thought and Culture, 19th Century</b>	<b>U</b>	<b>3</b>
European cultural developments in 19th century: romanticism, realism, existentialism: Shelley, Flaubert, Dostoevsky, Darwin, Marx, Nietzsche. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 513.01. GE historical study course.			
<b>3277</b>	<b>European Thought and Culture, 20th Century</b>	<b>U</b>	<b>3</b>
Major developments in 20th century literature, philosophy, science, and the arts. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 2261. GE historical study course.			
<b>3281</b>	<b>Imperial Russian History, 1700-1917</b>	<b>U</b>	<b>3</b>
Survey of Russian history from the reign of Peter the Great to the 1917 revolutions. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3282</b>	<b>History of the Soviet Union</b>	<b>U</b>	<b>3</b>
History of the Soviet Union from the Russian Revolution of 1917 to the collapse of communism in 1991. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 538. GE historical study and diversity global studies course.			
<b>3301</b>	<b>History of Modern West Africa, post 1800</b>	<b>U</b>	<b>3</b>
History of Modern West Africa since 1800; examines West African history from the era of European conquests to the present. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			
<b>3302</b>	<b>Nationalism, Socialism, and Revolution in Africa</b>	<b>U</b>	<b>3</b>
Nationalist and revolutionary movements and governments in Africa 1950s to present. Socialist, revolutionary, and nationalist strategies for state-formation, social reform, and economic development. Sometimes this course is offered in distance only. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			

<b>3304</b>	<b>History of Islam in Africa</b>	<b>U</b>	<b>3</b>
Africa from the emergence of Islam in the 600s to the Present. African contributions to Islam and the impact of Islam on African societies. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for AfAmAST 3304 (541). GE historical study course. Cross-listed in AfAmAST.			
<b>3306</b>	<b>History of African Christianity</b>	<b>U</b>	<b>3</b>
The development of Christianity in Africa from antiquity to the present; Christianity's interaction with Islam and indigenous religions; Mission Christianity and its aftermath. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			
<b>3307</b>	<b>History of African Health and Healing</b>	<b>U</b>	<b>3</b>
African approaches to health and healing; interaction between religion, culture and healing; intersections and contradictions between African and Western concepts of health healing. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3308</b>	<b>History of US - Africa Relations, 1900 - Present</b>	<b>U</b>	<b>3</b>
History of the United States' relations with Africa since World War I. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for AfAmAST 3308. GE historical study and diversity global studies course. Cross-listed in AfAmAST.			
<b>3310</b>	<b>History of African Cinema</b>	<b>U</b>	<b>3</b>
Emergence and development of African cinema as a film genre and part of material culture. European colonial and ethnographic film to modern African cinema. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for AfAmAST 3320. GE historical study and diversity global studies course. Cross-listed in AfAmAST 3320.			
<b>3312</b>	<b>Africa &amp; World War II</b>	<b>U</b>	<b>3</b>
This course will focus on the oft-neglected African dimension of WWII. The course will explore the importance of Africans as soldiers and producers; the effects of WWII on class, race, and gender relations within the continent; and the importance of WWII in provoking crises in colonial empires and transforming the nature of political mobilization across the African continent. Prereq: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3313</b>	<b>Conflict in the Horn of Africa</b>	<b>U</b>	<b>3</b>
This course will explore conflict in the Horn of Africa, a region that has been embroiled in interlocking civil wars, ethnic and religious conflicts, territorial disputes, and the disintegration of the nation states for many years. It will examine the root causes, the nature, and the impact of these conflicts on local communities as well as their regional and international implications. Prereq: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3314</b>	<b>From Rubber to Coltan: A Long History of Violence and Exploitation in Central Africa</b>	<b>U</b>	<b>3</b>
This course will explore how the histories of economic exploitation, political authoritarianism, and the supposedly ethnic conflict in the central Africa region are intertwined, and how seemingly local conflicts have global roots. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3351</b>	<b>Intellectual and Social Movements in the Muslim World</b>	<b>U</b>	<b>3</b>
Upper-level lecture/discussion course on significant intellectual and social movements in the Middle East and vicinity from the advent of Islam to the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 542.01. GE historical study course.			
<b>3352</b>	<b>Marginal Groups in the Non-Western World</b>	<b>U</b>	<b>3</b>
An examination of selected marginal populations, who may include religious and/or ethnic minorities, women, slaves, eunuchs, those with physical disabilities, and geographically isolated groups. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 589. GE historical study course.			
<b>3353</b>	<b>Jewish Communities under Islamic Rule</b>	<b>U</b>	<b>3</b>
Lecture and discussion course examining the experiences of Jewish communities in predominantly Muslim societies from the advent of Islam through ca. 1800. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3354</b>	<b>Islamic Spain and North Africa</b>	<b>U</b>	<b>3</b>
Lecture/discussion course examining Spain and North Africa under Islamic rule, from the Muslim conquests of the early 7th century through the early 19th century. Prereq or concur: English 1110 or equiv, or permission of instructor. GE historical study course.			

<b>3355</b>	<b>The Early Islamic Conquests (CE 630-750)</b>	<b>U</b>	<b>3</b>
Utilizing new historical methods for reading and interpreting the sparse contemporary and near contemporary testimonies for this historical period, this course explores how these testimonies, both Muslim and non-Muslim, continue to challenge historians to revise the history of the Islamic conquests. In this course a strong focus is placed on reading primary source materials in translation. Prereq: Not open to students with credit for Islam 3355. GE historical study and diversity global studies course. Cross-listed in Islam.			
<b>3357</b>	<b>The Middle East in the 19th Century</b>	<b>U</b>	<b>3</b>
Lecture and discussion course examining the transformations wrought by westernizing reforms and European imperialism in the Middle East during the 19th century. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for 3350 or 540.04. GE historical study course.			
<b>3365</b>	<b>History of Afghanistan</b>	<b>U</b>	<b>3</b>
This course will address Afghan society, its historical foundations, and the challenges that confront it. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 355. GE historical study course.			
<b>3375</b>	<b>Mongol World Empire: Central Eurasia, 1000-1500</b>	<b>U</b>	<b>3</b>
This course will address the social, cultural, and political history of medieval Central Eurasia, focusing on the Mongol Empire and its legacy. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 544. GE historical study and diversity global studies course.			
<b>3376</b>	<b>The Silk Road: Cross-Cultural Exchanges in Eurasian History</b>	<b>U</b>	<b>3</b>
A study of the commercial and cultural relations among Chinese, Indian, Iranian, and Roman/Islamic civilizations. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3401</b>	<b>Foundations of Chinese Civilization</b>	<b>U</b>	<b>3</b>
Cross-era comparative development of thoughts, beliefs, culture, economy, and political system through the Tang (618-907) that shaped China's later history and role in East Asia. Prereq or concur: English 1110 or equiv, and course work in History at the 2000 level, or permission of instructor. Not open to students with credit for 342. GE historical study course.			
<b>3403</b>	<b>History of Early Modern China: 14th-18th century</b>	<b>U</b>	<b>3</b>
Introduction to political, social, cultural, and economic developments from 14th to 18th century, mainly the Ming and early Qing dynasty. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3404</b>	<b>Modern China 1750-1949</b>	<b>U</b>	<b>3</b>
History of Modern China, circa 1750 to 1949; emphasis on state and society (politics, military affairs, economics, social structure, and culture). Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 545.03. GE historical study and diversity global studies course.			
<b>3405</b>	<b>Contemporary China 1921-2000</b>	<b>U</b>	<b>3</b>
History of Contemporary China from 1921 to 2000; emphasis on Communist Party, state and society (politics, military affairs, economics, social structure, and culture). Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 545.04. GE historical study and diversity global studies course.			
<b>3410</b>	<b>Studies in Chinese History</b>	<b>U</b>	<b>3</b>
Topics and issues in any period of Chinese history contingent on interests of faculty and students; usually this course emphasizes readings and discussions. Prereq or concur: English 1110.xx, or permission of instructor. Repeatable to a maximum of 9 or hrs. GE historical study and diversity global studies course.			
<b>3411</b>	<b>Gender and Sexuality in China</b>	<b>U</b>	<b>3</b>
Introduction to gender and sexuality in China, including Confucian gender ideology, changes in marriage, family, sexual morality, and work from pre-modern to modern period. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			
<b>3425</b>	<b>History of Japan Before 1800</b>	<b>U</b>	<b>3</b>
History of Japan to 19th century; emphasis on religion, politics, economic development, social structure and culture. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 548.01. GE historical study and diversity global studies course.			
<b>3426</b>	<b>History of Modern Japan</b>	<b>U</b>	<b>3</b>
Japanese history since 1800: politics, economics, intellectual change, foreign relations. International scientific, technological and cultural interaction, World War II, Japanese contributions to global culture featured. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3435</b>	<b>History of Early Modern Korea</b>	<b>U</b>	<b>3</b>
Examines the development of Korea from ancient times through the turn of the 20th century. Sometimes this course is taught in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			

<b>3436</b>	<b>History of Modern Korea</b>	<b>U</b>	<b>3</b>
Modern Korean History, with focus on the legacy of colonialism, the Korean War, the impact of the Cold War, divided Korea, the growth of competing national ideologies and economic systems, and the recent military crises. Sometimes taught at distance. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			
<b>3450</b>	<b>History of Ancient Israel (to 300 BCE)</b>	<b>U</b>	<b>3</b>
Survey of the history and historiography of Israel from its origins to the advent of Hellenism. Prereq: English 1110.xx, and any History 2000-level course; or permission of instructor. Not open to students with credit for 530.01 or JewshSt 3450. GE historical study course. Cross-listed in JewshSt.			
<b>3455</b>	<b>Jewish Life from the Renaissance to the Early Enlightenment</b>	<b>U</b>	<b>3</b>
Life and thought of European and Mediterranean Jews in the early modern period. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for JewshSt 3455. GE historical study course. Cross-listed in JewshSt.			
<b>3465</b>	<b>American Jewish History</b>	<b>U</b>	<b>3</b>
Study of topics in American Jewish history from the colonial era to the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for JewshSt 3465. GE historical study course. Cross-listed in JewshSt.			
<b>3470</b>	<b>Messiahs and Messianism in Jewish History</b>	<b>U</b>	<b>3</b>
The history of Jewish messianic ideas and of Jewish messianic leadership from ancient to modern times. Prereq: English 1110.xx, and any History 2000-level course; or permission of instructor. Not open to students with credit for 531.01 or JewshSt 3470. GE historical study course. Cross-listed in JewshSt.			
<b>3475</b>	<b>History of the Arab-Israeli Conflict</b>	<b>U</b>	<b>3</b>
This course follows the history of the Arab-Israeli conflict from its inception in the late 19th century to the early 21st century. Course materials include secondary historical sources, a variety of primary documents, short stories, memoirs and films. These materials will provide students with an in-depth understanding of the history of the conflict from multiple perspectives. Prereq: English 1110.xx, or permission of instructor. GE cultures and ideas and historical study course.			
<b>3500</b>	<b>U.S. Diplomacy from Independence to 1920</b>	<b>U</b>	<b>3</b>
The formulation of U.S. foreign policy and foreign relations around the world from the independence of the republic to the aftermath of World War I. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3501</b>	<b>U.S. Diplomacy, 1920-Present</b>	<b>U</b>	<b>3</b>
The formulation of U.S. foreign policy and foreign relations around the world from the aftermath of World War I to the modern day. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 583.02. GE historical study course.			
<b>3505</b>	<b>U.S. Diplomacy in the Middle East</b>	<b>U</b>	<b>3</b>
Survey of U.S. foreign policy in the Middle East emphasizing the Cold War, Arab-Israeli conflict, Iran, and wars against Iraq. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for JewshSt 3505. GE historical study and diversity global studies course. Cross-listed in JewshSt.			
<b>3506</b>	<b>Diplomacy, Congress, and the Imperial Presidency</b>	<b>U</b>	<b>3</b>
This class will explore how the relationship between the branches of government in the United States have evolved over the last 100 years, and how thinking historically can shape contemporary discussions of policy. We'll consider the separation of powers, and how historical precedents have elaborated, challenged, and codified the vague outline defined in the Constitution. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3525</b>	<b>19th Century European International History</b>	<b>U</b>	<b>3</b>
History of the international relations and diplomacy of Europe from the French Revolution to the First World War. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3540</b>	<b>Modern Intelligence History</b>	<b>U</b>	<b>3</b>
This course examines the role of diplomatic and military intelligence in the making of policy in modern history. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3550</b>	<b>War in World History, 500-1650</b>	<b>U</b>	<b>3</b>
Study of the causes, conduct, and consequences of warfare around the world, 500-1650. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies course.			
<b>3551</b>	<b>War in World History, 1651-1899</b>	<b>U</b>	<b>3</b>
Study of the causes, conduct, and consequences of warfare around the world, 1650-1900. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			

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<b>3552</b>	<b>War in World History, 1900 - Present</b>	<b>U</b>	<b>3</b>
Study of the causes, conduct, and consequences of warfare around the world, 1900-present. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 580.02. GE historical study course.			
<b>3560</b>	<b>American Military History, 1607-1902</b>	<b>U</b>	<b>3</b>
American military history, 1607-1902; emphasis on the formation of national security policy, war-waging, and the reciprocal impact of society and military institutions. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 582.01. GE historical study course.			
<b>3561</b>	<b>American Military History, 1902 to the Present</b>	<b>U</b>	<b>3</b>
American military history, 1902 to the present; emphasis on the formation of national security policy, war-waging, and the reciprocal impact of society and military institutions. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 582.02. GE historical study course.			
<b>3570</b>	<b>World War II</b>	<b>U</b>	<b>3</b>
Study of the causes, conduct, and consequences of World War II. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3575</b>	<b>The Korean War</b>	<b>U</b>	<b>3</b>
This course will show how the often overlooked Korean War proved to be a critical moment in modern world history. Rooted in themes in Asian and American history from before the 20th century, this course places the Korean War conflict within a longer framework of East Asian struggles against western influence and within a broader international context. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3580</b>	<b>The Vietnam War</b>	<b>U</b>	<b>3</b>
Study of the background, causes, conduct, and consequences of the Vietnam War, 1945-1975. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3590</b>	<b>Wars of Empire</b>	<b>U</b>	<b>3</b>
This course examines the means, methods, challenges and results of military encounters between modern imperial powers and indigenous forces they met on the battlefield. Prereq or concur: English 1110.xx or equiv, or permission of instructor. GE historical study course.			
<b>3600</b>	<b>Studies in Women's and Gender History</b>	<b>U</b>	<b>3</b>
In-depth analysis of selected topics in American, European, and/or Third World women's history; topic varies by semester. Prereq: English 1110.xx, or permission of instructor. Repeatable to a maximum of 12 cr hrs. GE historical study course.			
<b>3612</b>	<b>Asian American Women: Race, Sex, &amp; Representations</b>	<b>U</b>	<b>3</b>
Examines the experiences and cultural representations of Asian American women for insight into race, gender, sexuality, and citizenship in U.S. society. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity soc div in the US course. Cross-listed in WGSSt 4401.			
<b>3620</b>	<b>Lesbian, Gay, Bisexual, and Transgender History in the United States, 1940-Present</b>	<b>U</b>	<b>3</b>
An overview of LGBT culture and history in the U.S. from 1940 to the present. Students will examine changes in LGBT lives and experiences during the last half of the 20th century and the beginning of the 21st century, as well as the intersections of race, sexuality, and class, and how these categories have affected sexual minority communities and broader US law and culture. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>3640</b>	<b>Medieval Women: Power, Piety, and Production</b>	<b>U</b>	<b>3</b>
Investigation of the lives and experiences of medieval European women, with special focus on political power, religious life, work, and family life. Prereq or concur: English 1110 or equiv, and course work in History at the 2000 level, or permission of instructor. Not open to students with credit for 523. GE historical study course.			
<b>3641</b>	<b>Women and Gender in Early Modern Europe: 1450-1750</b>	<b>U</b>	<b>3</b>
Investigation of the lives and experiences of early modern European women, with special focus on family life, gender, work, education, religious life, and political power. Prereq or concur: English 1110 or equiv, and course work in History at the 2000 level, or permission of instructor. Not open to students with credit for 523. GE historical study course.			
<b>3642</b>	<b>Women in Modern Europe, from the 18th century to the Present</b>	<b>U</b>	<b>3</b>
Study of women's lives and activism emphasizing the ways in which economic position, religion, sexuality, marital status, regional and national differences influenced their experiences. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 524. GE historical study course.			
<b>3650</b>	<b>Families in Historical Perspective</b>	<b>U</b>	<b>3</b>
Comparative and transnational analysis of family history. Focus on questions of gender, sexuality, culture, religion, and economy as they intersect with families and households. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for 527. GE historical study course.			

<b>3670</b>	<b>Trans-National History of World War II in Europe</b>	<b>U</b>	<b>3</b>
One of three Spring prerequisite courses to the World War II Study Program's May term in Europe. Only students accepted into the program during the October registration period may enroll. This class will deepen the contextual knowledge of students about the different national histories and the specific sites they will encounter in May. Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Students must be accepted into the WWII Study Abroad program for the upcoming "May" term. GE historical study course.			
<b>3675</b>	<b>How to Stage a Revolution</b>	<b>U</b>	<b>3</b>
Compares revolutionary movements in order to help explain why some fail and some succeed. Sometimes this course is offered in a distance-only format. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.			
<b>3680</b>	<b>Religion and Law in Comparative Perspective</b>	<b>U</b>	<b>3</b>
Comparative, interdisciplinary approach to studying religion and law. Drawing on concrete cases, historical studies, and theoretical literature, the course explores how the relationship between religion and law has been configured differently in different liberal democracies, such as the U.S., France, and Israel, and what this might mean for contemporary debates. Team-taught w/ faculty in RelStds. Prereq: Not open to students with credit for RelStds 3680. GE historical study and diversity global studies course. Cross-listed in RelStds.			
<b>3700</b>	<b>American Environmental History</b>	<b>U</b>	<b>3</b>
The history of American ecosystems from the last Ice Age to the present; focuses on historical debates over the causes and consequences of environmental change. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			
<b>3701</b>	<b>History of American Medicine</b>	<b>U</b>	<b>3</b>
Survey of the history of American medicine from the Colonial period through the twentieth century. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 562. GE historical study course.			
<b>3702</b>	<b>Digital History</b>	<b>U</b>	<b>3</b>
This course is a survey of the ways digital technology is impacting history: from the collection and preservation of primary sources, to the analysis of those documents with the aid of algorithms, to the representation of the past through digital means. Students will read and reflect upon important works in digital history, as well as engage in the process of creating digital history. Prereq: English 1110.xx, or permission of instructor. GE historical studies course.			
<b>3704</b>	<b>HIV: From Microbiology to Macrohistory</b>	<b>U</b>	<b>3</b>
This course is an interdisciplinary exploration of HIV/AIDS, tracing the evolution of the virus at both the molecular level and within its global historical context. This course is team-taught by a virologist and a historian. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for Micrbio 3704. Cross-listed in Micrbio.			
<b>3705</b>	<b>History of Capitalism in Comparative and Global Perspective</b>	<b>U</b>	<b>3</b>
An historical comparison of the development of modern forms of capitalism globally. Prereq or concur: Any 2000-level History course, and English 1110.xx; or permission of instructor. Not open to students with credit for 587.01. GE historical study course.			
<b>3706</b>	<b>Coca-Cola Globalization: The History of American Business and Global Environmental Change 1800-Today</b>	<b>U</b>	<b>3</b>
This course offers an introduction to the fields of environmental history and business history, beginning with the industrial revolution of the early nineteenth century and ending in the twenty-first century. It chronicles the rise of some of America's biggest multinational corporations and examines how these firms, working with governments and other institutions, shaped global change. Prereq: English 1110.xx, or permission of instructor. GE historical study and diversity soc div in the US course.			
<b>3708</b>	<b>Vaccines: A Global History</b>	<b>U</b>	<b>3</b>
This course examines the history and biology of vaccines. We explore the discovery and development of vaccines, along with the political and cultural controversies that have surrounded them for centuries. Team-taught course with faculty member in Pharmacy. Prereq: Not open to students with credit for Phr 3708. GE historical study course. Cross-listed in Phr.			
<b>3711</b>	<b>Science and Society in Europe, from Copernicus to Newton</b>	<b>U</b>	<b>3</b>
A survey of the history of science and its place and relationship to European society in the early modern period. Students will understand the various strands that constitute the scientific revolution in early modern Europe, modern intellectual history, how revolutions in thought occur, and will practice analytical and communications skills in working with both secondary and primary sources. Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.			

**3712 Science and Society in Europe, from Newton to Hawking** U 3

The history of science from the eighteenth through to the late twentieth century. Students will study major developments in the physical, geological, biological and chemical sciences, and the relation of the history of science to social, economic, political and cultural developments in European history.

Prereq or concur: English 1110.xx, or permission of instructor. GE historical study course.

**3715 Explorations of Science, Technology and the Environment in East Asia** U 3

Case studies in the Development of Science, Technology and Environmental Change in the East Asian context, pre-modern to modern times.

Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Not open to students with credit for 587.02. GE historical study and diversity global studies course.

**3724 History of the Arctic** U 3

This course will introduce students to the history, geography, culture, ethnic diversity, inter-communal relations, economy, and strategic importance of the planet's Arctic regions, from arrival of humans to the region to the present.

Prereq or concur: English 1110.xx, or permission of instructor. GE historical study and diversity global studies course.

**3797 Study at a Foreign Institution** U 1 - 6

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

Prereq: English 1110 or equiv, and course work in History at the 2000 level, or permission of instructor. Repeatable to a maximum of 27 cr hrs or 9 completions.

**3798.01 Study Tour** U 1 - 6

Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details.

Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.

**3798.02 The U.S., Europe, and the Second World War: Intersections in 20th Century History** U 3

Study Tour in Europe exploring the history of World War II, the United States, and Europe. Prereq: English 1110.xx, History 3015, 3570, 4795, and French 3801; or permission of instructor. GE historical study and diversity global studies and education abroad course.

**3798.03 Shanghai, 1750 to 2050: History, Culture, and Language** U 3

The Shanghai Study Tour will present students with general empirical information and interpretations about the history of Shanghai and China. Students will study the history, culture, and language of Shanghai "up close and personal" by taking classes at East China Normal University, visiting major historical sites in Shanghai, and by living in China.

Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies and education abroad course.

**3798.04 Global Hotspots of the Early Modern World: Buenos Aires** U 3

Through the study of 18th century Buenos Aires, this course will inform students about the emergence of cities that connected Old and New Worlds and that served as places of innovation in commerce, political structures, and ideas. Students will benefit from international travel experience and exposure, and will acquire new depth of knowledge about the history of global interconnectedness.

Prereq: English 1110.xx and any History 2000-level course, or permission of instructor. GE historical study and diversity global studies and education abroad course.

**3798.05 HIV in Context: East Africa** U 4

This course is an interdisciplinary exploration of the real world impact of- and response to HIV/AIDS.

Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for Micrbio 3798.05. GE historical study and education abroad course. Cross-listed in Micrbio.

**3798.06 Between France and Morocco: Inclusivity and Diversity in the Francophone World** U 3

This is a Study Abroad course offered in the 4-Week May Session that traces the evolution of plural (cultural, religious, political, and national) identities in France and North Africa, focusing on shared histories and tensions between the two countries.

GE historical study and diversity global studies course.

**4005 Seminar in Early American History** U 3

Advanced research and readings on selected topics in Early American History.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4005E Seminar in Early American History** U 3

Advanced research and readings on selected topics in Early American History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4005H Honors Seminar in Early American History** U 3

Advanced research and readings on selected topics in Early American History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4015 Seminar in Modern U.S. History** U 3

Advanced research and writing on selected topics in Modern U.S. History.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4015E Embedded Honors Seminar in Modern U.S. History** U 3

Advanced research and readings on selected topics in Modern U.S. History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4015H Honors Seminar in Modern U.S. History** U 3

Advanced research and readings on selected topics in Modern U.S. History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4085 Seminar in African American History** U 3

Advanced research and readings on selected topics in African American History.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4085H Honors Seminar in African American History** U 3

Advanced research and readings on selected topics in African American History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4125 Seminar in Latin American History** U 3

Advanced research and readings on selected topics in Latin American History.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4125E Embedded Honors Seminar in Latin American History** U 3

Advanced research and readings on selected topics in Latin American History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4193.01 Individual Studies** U 1 - 6

Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest.

Prereq: English 1110.xx and any History 3000-level course, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 20 completions.

**4193.02 Individual Studies** U 1 - 6

Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest.

Prereq: English 1110.xx and any History 3000-level course, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.

**4194 Advanced Undergraduate Group Studies** U 1 - 6

Advanced Undergraduate Group Studies. Sometimes this course is offered in a distance-only format.

Prereq or concur: English 1110 or equiv, and course work in History at the 3000 level, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.

**4215 Seminar in Greek History** U 3

Advanced research and readings on selected topics in Greek History.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4215E Embedded Honors Seminar in Greek History** U 3

Advanced research and readings on selected topics in Greek History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4215H Honors Seminar in Greek History** U 3

Advanced research and readings on selected topics in Greek History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4216 Seminar in Roman History** U 3

Advanced research and readings on selected topics in Roman History.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4216E Embedded Honors Seminar in Roman History** U 3

Advanced research and readings on selected topics in Roman History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4216H Honors Seminar in Roman History** U 3

Advanced research and readings on selected topics in Roman History.

Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

**4217 Seminar in Late Antiquity** U 3

Advanced research and readings on selected topics in Late Antiquity.

Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.

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<b>4217E</b>	<b>Embedded Honors Seminar in Late Antiquity</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Late Antiquity. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4217H</b>	<b>Honors Seminar in Late Antiquity</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Late Antiquity. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4218E</b>	<b>Embedded Honors Seminar in Byzantine History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Byzantine History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4218H</b>	<b>Honors Seminar in Byzantine History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Byzantine History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4235H</b>	<b>Honors Seminar in Medieval History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Medieval History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4245</b>	<b>Seminar in Early Modern European History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Early Modern European History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4245E</b>	<b>Embedded Honors Seminar in Early Modern European History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Early Modern European History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4245H</b>	<b>Honors Seminar in Early Modern European History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Early Modern European History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4255</b>	<b>Seminar in Modern European History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Modern European History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4255E</b>	<b>E Honors Seminar in Modern European History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Modern European History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4285</b>	<b>Seminar in Russian, East European and Eurasian History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Russian, E European and Eurasian History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4285E</b>	<b>Embedded Honors Seminar in Russian, E European and Eurasian History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Russian, E European and Eurasian History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4285H</b>	<b>Honors Seminar in Russian, East European and Eurasian History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Russian, East European and Eurasian History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4325</b>	<b>Seminar in African History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in African History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4325E</b>	<b>Embedded Honors Seminar in African History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in African History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4325H</b>	<b>Honors Seminar in African History Honors</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in African History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			

[illegible]

<b>4625</b>	<b>Seminar in Women's/Gender History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Women's/Gender History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4625E</b>	<b>E Honors Seminar in Women's/Gender History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Women's/Gender History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4625H</b>	<b>Honors Seminar in Women's/Gender History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Women's/Gender History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4675</b>	<b>Seminar in World/Global/Transnational History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in World/Global/Transnational History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4675E</b>	<b>Embedded Honors Seminar in World/Global/Transnational History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in World/Global/Transnational History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4675H</b>	<b>Honors Seminar in World/Global/Transnational History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in World/Global/Transnational History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4705</b>	<b>Seminar in the History of Environment, Technology, and Science</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Environmental History, Technology and Science. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4705E</b>	<b>Embedded Honors Seminar in the History of Environment, Technology, and Science</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Environmental History, Technology and Science. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4705H</b>	<b>Honors Seminar in the History of Environment, Technology, and Science</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in Environmental History, Technology and Science. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4730</b>	<b>Seminar in the History and Theory of the State</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in the History and Theory of the State. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4730E</b>	<b>Embedded Honors Seminar in the History and Theory of the State</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in the History and Theory of the State. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4730H</b>	<b>Honors Seminar in the History and Theory of the State</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in the History and Theory of the State. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4795</b>	<b>Seminar in History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in History. Prereq or concur: English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4795E</b>	<b>Embedded Honors Seminar in History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4795H</b>	<b>Honors Seminar in History</b>	<b>U</b>	<b>3</b>
Advanced research and readings on selected topics in History. Prereq or concur: Honors standing, English 1110.xx, a grade of C or above in History 2800, and any 3000-level History course; or permission of instructor.			
<b>4797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 6</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq or concur: Any 3000-level History course, and English 1110.xx; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			

<b>4870</b>	<b>The Ohio State University: Its History and Its World</b>	<b>U</b>	<b>3</b>
An introduction to the past and present of OSU, its importance, its disciplines, the interrelations of the academic and other components of the institution, and the contributions over the years of OSU to the wider world. Prereq: Not open to students with credit for ArtsSci 4870. GE cultures and ideas course. Cross-listed in ArtsSci.			
<b>4998</b>	<b>Undergraduate Research in History</b>	<b>U</b>	<b>1 - 6</b>
Undergraduate research in history. Prereq or concur: Any 3000-level History course, and English 1110.xx, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.			
<b>4998E</b>	<b>Honors Undergraduate Research in History</b>	<b>U</b>	<b>1 - 6</b>
Honors undergraduate research in History. Prereq or concur: Honors standing, and any 3000-level History course, and English 1110.xx, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research in History</b>	<b>U</b>	<b>1 - 6</b>
Honors undergraduate research in History. Prereq or concur: Honors standing, and any 3000-level History course, and English 1110.xx, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 6</b>
Informal conferences to allow full scope to the initiative of the student; a special topic is assigned and results are tested by papers and special examinations. Prereq or concur: Any 3000-level History course, and English 1110.xx; or permission of instructor. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 6</b>
Informal conferences to allow full scope to the initiative of the student; a special topic is assigned and results are tested by papers and special examinations. Prereq or concur: Honors standing, and any 3000-level History course, and English 1110.xx; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5080</b>	<b>Special Topics in African American History</b>	<b>U G</b>	<b>3</b>
Advanced course in African American History. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>5194</b>	<b>Combined Undergrad and Grad Group Studies</b>	<b>U G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of History. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>5212</b>	<b>Special Topics in Late Antique History</b>	<b>U G</b>	<b>3</b>
Advanced course in Late Antique History. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5229</b>	<b>Special Topics in Ancient Christianity</b>	<b>U G</b>	<b>3</b>
Advanced course in the History of Ancient Christianity. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5300</b>	<b>Special Topics in African History</b>	<b>U G</b>	<b>3</b>
Advanced course in African History. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5550</b>	<b>Special Topics in Military History</b>	<b>U G</b>	<b>3</b>
Advanced course in Military History. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5650</b>	<b>Special Topics in World/Global/Transnational History</b>	<b>U G</b>	<b>3</b>
Advanced course in World/Global/Transnational History. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5700</b>	<b>Special Topics in the History of Environment, Technology, and Science</b>	<b>U G</b>	<b>3</b>
Advanced course in the History of Environment, Technology, and Science. Topics Vary. Prereq or concur: Any 3000-level History course, and English 1110.xx; or Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5710</b>	<b>History of Anatomy</b>	<b>U G</b>	<b>3</b>
This course examines the history of anatomy as a way of categorizing and explaining the relationships of parts to wholes in once living creatures, notably human beings. We focus on the history of anatomical observations, education, modes of communication, and professionalization. Team-taught course with faculty member in Anatomy. Prereq: Anatomy 2220, 2300, or 3300; or Grad standing; or permission of both instructors. Cross-listed in Anatomy.			

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<b>6193.01</b>	<b>Independent Study in History</b>	<b>G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of history through graduate-level individual studies. Prereq: Grad standing. Not open to students with credit for 791. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>6193.02</b>	<b>Independent Study in History</b>	<b>G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of history through graduate-level individual studies. Prereq: Grad standing. Not open to students with credit for 791. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>6194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of history. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>6999</b>	<b>Master's Thesis Research</b>	<b>G</b>	<b>1 - 12</b>
Research for Master's thesis. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs or 3 completions. This course is graded S/U.			
<b>7000</b>	<b>Studies in Early American History to 1877</b>	<b>G</b>	<b>1 - 6</b>
Graduate readings in selected topics in Early American history to 1877. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7001</b>	<b>Graduate Readings in Colonial America</b>	<b>G</b>	<b>1 - 6</b>
Readings in the historical literatures of Colonial America in its Atlantic World context to 1763. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7002</b>	<b>Graduate Readings in the American Revolution and Early Republic</b>	<b>G</b>	<b>1 - 6</b>
Readings in the historical literatures of the American Revolution and early nation-building through approximately 1800. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7003</b>	<b>Graduate Readings in the Early Republic &amp; Antebellum America</b>	<b>G</b>	<b>1 - 6</b>
Reading in the historical literatures of the Early and Antebellum Republics from approximately 1800 through the 1850s. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7011</b>	<b>Historiography of Modern U.S. I</b>	<b>G</b>	<b>1 - 6</b>
Readings in Modern US history, 1877-1945. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7012</b>	<b>Historiography of Modern U.S. II</b>	<b>G</b>	<b>3</b>
Readings in Modern US history, 1945 to present. Prereqs: Undergrad requires permission of instructor. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7014</b>	<b>Studies in American Urban History</b>	<b>G</b>	<b>1 - 6</b>
Graduate Reading Seminar in American Urban History. Chronology and Themes will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7086</b>	<b>The Civil Rights and Black Power Movements</b>	<b>G</b>	<b>1 - 6</b>
This course examines the origins, evolution, and outcomes of the African American freedom struggle, focusing on the Civil Rights and Black Power movements. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in AAAS 7086.			
<b>7087</b>	<b>Black Women in the United States</b>	<b>G</b>	<b>1 - 6</b>
A study of historical and related scholarship on the history and experience of black women in the United States. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in AfAmAST.			
<b>7100</b>	<b>Studies in Latin American History</b>	<b>G</b>	<b>1 - 6</b>
An intensive study of problems in selected periods of Latin American history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7193.01</b>	<b>Independent Study in History</b>	<b>G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of history through graduate-level individual studies. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7193.02</b>	<b>Independent Study in History</b>	<b>G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of history through graduate-level individual studies. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.			
<b>7210</b>	<b>Graduate Reading Seminar in Ancient History</b>	<b>G</b>	<b>3</b>
Graduate seminar, with focus on methodological approaches to ancient history and/or a particular problem or theme in Greek, Roman, late antique, or Byzantine history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			

<b>7230</b>	<b>Studies in Medieval History</b>	<b>G</b>	<b>1 - 6</b>
Advanced reading course in sources and monographs on the principal issues and problems in medieval history, with a stress on bibliography. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7240</b>	<b>Studies in Early Modern European History</b>	<b>G</b>	<b>3</b>
Selected topics in western European history of the 17th and 18th centuries. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7250</b>	<b>Studies in 19th Century European History</b>	<b>G</b>	<b>1 - 6</b>
Readings in 19th Century European History. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7255</b>	<b>Studies in 20th Century European History</b>	<b>G</b>	<b>1 - 6</b>
This intensive reading course is designed to give graduate students an introduction to historiographical questions in 20th-century European history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7265</b>	<b>Studies in French History</b>	<b>G</b>	<b>1 - 6</b>
Selected topics in French political, social, cultural, and intellectual history and historiography. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7275</b>	<b>Studies in Eastern European History</b>	<b>G</b>	<b>1 - 6</b>
Selected topics in Eastern European political, social, cultural, and intellectual history and historiography; theoretical and comparative emphasis. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7280</b>	<b>Studies in Russian, Soviet, and Eurasian History</b>	<b>G</b>	<b>3</b>
Graduate readings seminar on Russian, East European, and Eurasian history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7301</b>	<b>African Historiography and Methodology</b>	<b>G</b>	<b>3</b>
The study of sources, research methods, interpretations, and research trends in the field of African history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs. Cross-listed in AfAmAST.			
<b>7302</b>	<b>Comparative History of The African Diaspora and Enslavement and Emancipation</b>	<b>G</b>	<b>1 - 6</b>
Examination of the dispersal of Africans, mainly through the slave trade across the Sahara, the Indian Ocean, the Mediterranean, and the Atlantic Ocean. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in AfAmAST 7302.			
<b>7303</b>	<b>Comparative History of the African Diaspora and Post-Emancipation, Colonial, &amp; Post-Colonial Reality</b>	<b>G</b>	<b>3</b>
Examination of social, political, and cultural developments and realities in the Black world, from the period of the emancipation to the beginning of the 21st century. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs. Cross-listed in AfAmAST.			
<b>7305</b>	<b>Studies in African Religions</b>	<b>G</b>	<b>3</b>
Selected topics in any African religion (including Christianity, Islam and indigenous religions). Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7350</b>	<b>Studies in Islamic History</b>	<b>G</b>	<b>3</b>
Graduate reading seminar on a topic in Islamic history, stressing topical coverage and/or historiography. May be repeated for credited when the topic changes. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7401</b>	<b>East Asia and the Modern/Contemporary World</b>	<b>G</b>	<b>1 - 6</b>
East Asia in modern and contemporary contexts: comparisons of / interactions between China, Japan, and Korea; also with Europe, Southeast and Central Asia and the US. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7405</b>	<b>Introduction to Graduate-level East Asian Studies</b>	<b>G</b>	<b>1</b>
The origins, development and current state of East Asian Area Studies in the U.S., including East Asian Studies relationship with other intellectual disciplines. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 797, EALL 7897 (797), or HistArt 6801 (797). This course is graded S/U. Cross-listed in EALL 7897 and HistArt 6801.			
<b>7410</b>	<b>Studies in Pre-Modern Chinese History</b>	<b>G</b>	<b>1 - 6</b>
Intensive study, through reading and discussion, of major issues and recent scholarship in pre-modern Chinese history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7411</b>	<b>Studies in Modern and/or Contemporary Chinese History</b>	<b>G</b>	<b>1 - 6</b>
Intensive study, through reading and discussion, of major issues and recent scholarship in modern and/or contemporary Chinese history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7425</b>	<b>Studies in Japanese History</b>	<b>G</b>	<b>3</b>
An intensive study, through reading and discussion, of major issues and recent scholarship in Japanese history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			



<b>7500</b>	<b>Studies in International History</b>	<b>G</b>	<b>3</b>
Colloquium in International History. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7550</b>	<b>Studies in Military History</b>	<b>G</b>	<b>3</b>
Studies in military history; emphasis on military institutions and activities in war and peace, along with works of historiographical interest to the military history field. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7575</b>	<b>Theories of War and Strategy</b>	<b>G</b>	<b>1 - 6</b>
This course focuses on an analysis and comparison of the most influential writers on the theory and practice of warfare including Thucydides, Machiavelli, Clausewitz, Jomini, Mahan, and Liddell Hart, but it also questions the utility of the 'greater thinkers' model in military history while applying theory to current events. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs or 2 completions.			
<b>7600</b>	<b>Studies in the History of Women and Gender</b>	<b>G</b>	<b>1 - 6</b>
Readings course for graduate students focusing on the history of women and gender. The course content will be international, emphasizing cross-cultural comparisons. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7650</b>	<b>Studies in World History</b>	<b>G</b>	<b>1 - 6</b>
Analysis of seminal works and concepts in the development of global-scaled integrative approaches to world history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7700</b>	<b>Graduate Readings in Environmental History</b>	<b>G</b>	<b>1 - 6</b>
Graduate level readings course in the historiography and key themes in environmental history. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7705</b>	<b>Graduate Readings in the History of Technology</b>	<b>G</b>	<b>1 - 6</b>
Graduate level readings in the history of technology. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7711</b>	<b>Graduate Readings in the History of Medicine and Health</b>	<b>G</b>	<b>3</b>
A graduate readings course that introduces students to the history of medicine and health as a historical field and will explore how work in the history of medicine and health intersects with scholarly insights in other fields. Prereq: Grad standing.			
<b>7725</b>	<b>Graduate Readings In Power, Culture and State</b>	<b>G</b>	<b>1 - 6</b>
Graduate readings in comparative topics in power, culture, and the state. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7750</b>	<b>Comparative Historiographies and Theories in Race, Ethnicity, and Nation</b>	<b>G</b>	<b>3</b>
Graduate reading course that examines the historical scholarship and theories in race, ethnicity, and nation in comparative geographical and chronological contexts. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7755</b>	<b>The History of the Idea of Race in Europe</b>	<b>G</b>	<b>1 - 6</b>
Examines the use and abuse of ideas of race in Western Europe from the Enlightenment to the present. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7797</b>	<b>Study at a Foreign Institution</b>	<b>G</b>	<b>1 - 6</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Grad standing, and permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7800</b>	<b>Introduction to Public History</b>	<b>G</b>	<b>1 - 6</b>
Survey of the field of Public History. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7801</b>	<b>Independent Study in Public History</b>	<b>G</b>	<b>1 - 6</b>
Permits individual students, or small groups of students to pursue independent work in public history with a faculty sponsor. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>7900</b>	<b>Colloquium in the Philosophy of History, Historiography, and the Historian's Skills I</b>	<b>G</b>	<b>3</b>
Colloquium on the principles of historical thought, historiography, and methods of historical research. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7901</b>	<b>Colloquium in the Philosophy of History, Historiography, and the Historian's Skills II</b>	<b>G</b>	<b>3</b>
Colloquium on the principles of historical thought, historiography, and methods of historical research. Particular attention is paid to historical methods. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7902</b>	<b>Graduate Colloquium on Historical Writing</b>	<b>G</b>	<b>1 - 6</b>
Designed to develop skills in historical writing. Prereq: Grad standing.			

<b>7905</b>	<b>Pedagogy &amp; Professional Development</b>	<b>G</b>	<b>1 - 6</b>
Basic ideas and techniques for effective teaching of college history; emphasis on classroom application. Also, professional development, esp. locating funding sources for their study, research, conferences & other professional activities. Prereq: Grad standing. Not open to students with credit for 795.01. This course is graded S/U.			
<b>7910</b>	<b>Prospectus Writing &amp; Professional Development</b>	<b>G</b>	<b>3</b>
Seminar dedicated to researching and writing Dissertation Prospectus. Also review of professional development skills: grant writing, building a resume and planning a career, how to write and present a conference paper, book reviews. Prereq: Grad standing. Not open to students with credit for 795.02. This course is graded S/U.			
<b>8000</b>	<b>Seminar in Early American History to 1877</b>	<b>G</b>	<b>3</b>
Graduate Research Seminar in Early American History to 1877. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>8010</b>	<b>Seminar in Modern U.S. History</b>	<b>G</b>	<b>3</b>
Graduate Research Seminar in Modern U.S. History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>8100</b>	<b>Seminar in Latin American History</b>	<b>G</b>	<b>3</b>
Graduate Research Seminar in Latin American History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>8193.01</b>	<b>Independent Study in History</b>	<b>G</b>	<b>1 - 6</b>
The investigation of particular problems in various fields of history through graduate doctoral-level individual studies. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8230</b>	<b>Seminar in Medieval History</b>	<b>G</b>	<b>3</b>
Graduate Research Seminar in Medieval History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>8250</b>	<b>Seminar in Modern European History</b>	<b>G</b>	<b>3</b>
Graduate Research Seminar in Modern European History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>8280</b>	<b>Seminar in Russian, East European and Eurasian History</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in Russian, East European, and Eurasian History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8300</b>	<b>Seminar in African History</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in African History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions. Cross-listed in AAAS 8300.			
<b>8350</b>	<b>Seminar in the History of the Islamic World</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in the History of the Islamic World. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8400</b>	<b>Seminar in East Asian History</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in East Asian History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8410</b>	<b>Chinese History Research Methodology</b>	<b>G</b>	<b>1 - 6</b>
Introduction to sources and methods in Chinese historical research (pre-modern and modern periods). Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8500</b>	<b>Seminar in International History</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in International and Diplomatic History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8550</b>	<b>Seminar in Military History</b>	<b>G</b>	<b>3</b>
Graduate Research Seminar in Military History. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>8630</b>	<b>Seminar in the history of Sexuality</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in the History of Sexuality. Topics will vary. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8801</b>	<b>Seminar in History</b>	<b>G</b>	<b>1 - 6</b>
Graduate Research Seminar in History. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation. Prereq: Grad standing. Repeatable. This course is graded S/U.			

## History of Art

## 248 History of Art

<b>2001</b>	<b>Western Art I: Ancient and Medieval Worlds</b>	<b>U</b>	<b>3</b>
Examination of the history of Western Art from the third millennium BCE to the fifteenth century CE. This course is available for EM credit. GE VPA and historical study and diversity global studies course.			
<b>2001H</b>	<b>Western Art I: Ancient and Medieval Worlds</b>	<b>U</b>	<b>3</b>
Examination of the history of Western Art from the third millennium BCE to the fifteenth century CE. Prereq: Honors standing, or by permission of dept or instructor. Not open to students with credit for 201, 201H, 210, or 210H. This course is available for EM credit. GE VPA and historical study and diversity global studies course. VSP Admis Cond course.			
<b>2002</b>	<b>Western Art II: The Renaissance to the Present</b>	<b>U</b>	<b>3</b>
Examination of the history of art in Europe and the United States, from 1400 to the present. This course is available for EM credit. GE VPA and historical study and diversity global studies course.			
<b>2002H</b>	<b>Western Art II: The Renaissance to the Present</b>	<b>U</b>	<b>3</b>
Examination of the history of art in Europe and the United States, from 1400 to the present. Prereq: Honors standing, or by permission of dept or instructor. GE VPA or historical study and diversity global studies course.			
<b>2003</b>	<b>The Art and Visual Culture of East Asia</b>	<b>U</b>	<b>3</b>
Art of East Asian cultures from ancient through contemporary times. Prereq: Not open to students with credit for 213 or 2003H. GE VPA and historical study and diversity global studies course.			
<b>2003H</b>	<b>The Art and Visual Culture of East Asia</b>	<b>U</b>	<b>3</b>
Art of East Asian cultures from ancient through contemporary times. Prereq: Honors standing. Not open to students with credit for 2003 (213). GE VPA and historical study and diversity global studies course.			
<b>2005</b>	<b>History of Latin American Art: Prehispanic and Early Modern</b>	<b>U</b>	<b>3</b>
Examines the art of Latin America from about 1500 BC to 1821, surveying both prehispanic civilizations as well as the era of Spanish and Portuguese rule from first encounters in 1492 to the wars of independence in the early nineteenth century. A wide range of objects and images will be discussed, from painting, sculpture, and architecture to ceramics, featherwork, and textiles. GE VPA and historical study course.			
<b>2101</b>	<b>Introduction to African Art and Archaeology</b>	<b>U</b>	<b>3</b>
The Art and Archaeology of Africa with emphasis on the historic cultures of Rock Art (8,000 B.C.), Egypt (3,000 B.C.), Nok (900 B.C.), Igbo-Ukwu (695 A.D.), Ife (1200 A.D.), and Benin (1400-1900 A.D.). Prereq: Not open to students with credit for 216 or AfAmASt 2101. GE VPA and diversity global studies course. VSP Admis Cond course. Cross-listed in AfAmASt.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
The investigation of particular problems in various fields of the history of art. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions.			
<b>2301</b>	<b>Classical Archaeology</b>	<b>U</b>	<b>3</b>
Introduction to the principles, methods, and history of archaeological investigation in the ancient Greek and Roman world, illustrated through a selection of major classical sites. Prereq: Not open to students with credit for Clas 2301 or History 2210. GE cultures and ideas and historical study and diversity global studies course. Cross-listed in Clas 2301 and History 2210.			
<b>2901</b>	<b>Introduction to World Cinema</b>	<b>U</b>	<b>3</b>
Chronological survey of the most influential and recognized film artists and film movements of the world. GE VPA and diversity global studies course.			
<b>3002</b>	<b>The History of Western Architecture</b>	<b>U</b>	<b>3</b>
Major buildings of Western Civilization from antiquity to the present in their historical and cultural contexts. Prereq: Not open to students with credit for 250, or 300, or more than one course from 2001-2002 (201-202) or from 210-212 sequences, or Arch 1220 (201), or any course from Arch 5110-5120 (600-602) sequence. GE VPA and diversity global studies course.			
<b>3005</b>	<b>Christian Art</b>	<b>U</b>	<b>3</b>
An introduction to the wide range of forms and functions of Christian images and spaces from the origin until 1700. Prereq: Soph standing. Not open to students with credit for 301. GE VPA course.			
<b>3010H</b>	<b>Gender and Sexuality in Western Art</b>	<b>U</b>	<b>3</b>
Introduction to the study of gender and sexuality in the history of art. Topics to be explored include the construction of gender through visual images, viewership and the gaze, the historical status of female artists and patrons, queer and feminist art history, and the depiction of the body. GE VPA course.			
<b>3211</b>	<b>Art and Civilization in the Near East</b>	<b>U</b>	<b>3</b>
An examination of the development of the visual arts and architecture of the Near East from the Neolithic Revolution to the Islamic period. Prereq: Soph standing. Not open to students with credit for 305. GE VPA course.			

<b>3521</b>	<b>Renaissance Art in Italy</b>	<b>U</b>	<b>3</b>
Art and society in Renaissance Italy. Prereq: Soph standing. Not open to students with credit for 315, 515, 4521 (529), or 4630 (530). GE VPA and diversity global studies course.			
<b>3603</b>	<b>Introduction to Modern and Contemporary Latin American Art and Culture</b>	<b>U</b>	<b>3</b>
Provides students with an overview of the major trends and movements of Latin American art and culture from the late 19th to the 21st centuries. GE VPA and diversity global studies course.			
<b>3605H</b>	<b>Honors History of Photography</b>	<b>U</b>	<b>3</b>
This course will begin with the emergence of photography and will provide a thematic overview and critical introduction to the main debates and achievements in the history of photography. No previous experience in photography required. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 3605. GE VPA course.			
<b>3611</b>	<b>Impressionism, Then and Now</b>	<b>U</b>	<b>3</b>
An examination of the emergence and evolution of French Impressionism and its impact on subsequent artistic production from the early 20th century to the present. GE VPA course.			
<b>3901</b>	<b>World Cinema Today</b>	<b>U</b>	<b>3</b>
An introduction to the art of international cinema today, including its forms and varied content. Prereq: Soph standing, or permission of instructor. GE VPA and diversity global studies course.			
<b>4001</b>	<b>Writing Seminar in History of Art</b>	<b>U</b>	<b>3</b>
Training in writing a variety of assignments commonly undertaken by art historians. Prereq: History of Art Major. Not open to students with credit for 415.			
<b>4005</b>	<b>An Introduction to Artistic Media and Techniques</b>	<b>U</b>	<b>3</b>
A survey of the major historical and contemporary artistic media and techniques. Prereq: History of Art major, or permission of instructor. Not open to students with credit for 450.			
<b>4010</b>	<b>An Introduction to the Methods and Theories of Art History</b>	<b>U</b>	<b>3</b>
An introduction to the fundamental methods and theories of art historical investigation. Prereq: History of Art major, or permission of instructor.			
<b>4016</b>	<b>Senior Research Seminar in History of Art</b>	<b>U</b>	<b>3</b>
A research seminar required of all History of Art majors designed to develop and perfect their research and writing skills. Prereq: 4001 or 4010; or permission of instructor.			
<b>4020</b>	<b>Special Topics in Architecture</b>	<b>U</b>	<b>3</b>
This is a lecture course, the contents of which would change with each offering. Prereq: 2001 (201), or 2002 (202), or permission of instructor. Repeatable to a maximum of 6 or hrs.			
<b>4030</b>	<b>Museum Studies Seminar</b>	<b>U</b>	<b>3</b>
Provide a hands-on exploration of museum exhibitions and how they shape knowledge in the field. Prereq: Permission of instructor. Not open to students with credit for 430.			
<b>4050</b>	<b>Art of Paris</b>	<b>U</b>	<b>3</b>
Study of the painting, sculpture, buildings, and public and private spaces created in and for the people of Paris. Prereq: Soph standing. Not open to students with credit for 550.			
<b>4191</b>	<b>Internship in Art History</b>	<b>U</b>	<b>1 - 3</b>
A cooperative education or internship assignment conducted under the supervision of a faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 6 or hrs or 2 completions. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.			
<b>4212</b>	<b>Egyptian Art and Archaeology</b>	<b>U</b>	<b>3</b>
A specialized study of the architecture, sculpture, painting, and minor arts of ancient Egypt. Prereq: 2001 (201), or equiv with permission of instructor. Not open to students with credit for 621 or 521.			
<b>4301</b>	<b>Art of Ancient Greece and Rome</b>	<b>U</b>	<b>3</b>
Explores the art of Ancient Greece and the Roman world from the early Bronze Age (c. 3000 BCE) through the era of Constantine (337 CE). While focusing on sculpture, painting and architecture, the approach in this course will also employ the methods of a wide variety of disciplines, including art history, archaeology, anthropology, history, epigraphy and Classical philology. Prereq: Not open to students with credit for Clas 4301.			

<b>4421</b>	<b>Medieval Art</b>	<b>U</b>	<b>3</b>
Art and architecture of Europe and the Eastern Mediterranean from the 5th to the 15th centuries; focuses on visual culture of monasteries, cathedrals, and castles. Prereq: Soph standing. Not open to students with credit for 603, 625, 651, 525. GE VPA and diversity global studies course.			
<b>4510</b>	<b>Northern Renaissance Art</b>	<b>U</b>	<b>3</b>
Art of Northern Europe from the late 14th to the mid 16th century, with emphasis on the major masters. Prereq: 2001 (201), or 2002 (202), or permission of instructor. Not open to students with credit for 527 or 627.			
<b>4531</b>	<b>17th-Century Art of the Netherlands</b>	<b>U</b>	<b>3</b>
17th Century Dutch and Belgian art: focuses on major artists and various functions of art (propagating religious beliefs, shaping values, defining identities). Prereq: 2001 (201), 2002 (202), or permission of instructor. Not open to students with credit for 533.			
<b>4541</b>	<b>17th-Century Art of Italy and Spain</b>	<b>U</b>	<b>3</b>
17th century Italian and Spanish art and architecture: focuses on major artists and various functions of art and architecture. Prereq: 2001 (201), or 2002 (202), or permission of instructor. Not open to students with credit for 523 or 631.			
<b>4550</b>	<b>18th-Century European Art</b>	<b>U</b>	<b>3</b>
Artistic trends in eighteenth century Venice, Rome, Paris and London. Prereq: 2002, or permission of instructor. Not open to students with credit for 534 or 634.			
<b>4605</b>	<b>Aspects of Modernity</b>	<b>U</b>	<b>3</b>
Explores questions of the distinctively "modern" in relation both to particular works of art and to various explicit reflections on broader cultural notions of modernity. The content will change with each offering. Prereq: English 1110 (110), and Soph standing. Not open to students with credit for 340. GE VPA course.			
<b>4620</b>	<b>Twentieth-Century European Art</b>	<b>U</b>	<b>3</b>
Historical/Conceptual survey of European art of the twentieth century. Prereq: 2002 (202) or 4605 (340), or permission of instructor. Not open to students with credit for 540.			
<b>4621</b>	<b>Twentieth-Century Architecture</b>	<b>U</b>	<b>3</b>
A historical and conceptual survey of architecture from the late 19th century to the beginning of the 21st and portions of the late 21st century developments. Prereq: 2002 (202), or permission of instructor. Not open to students with credit for 559.			
<b>4630</b>	<b>American Art</b>	<b>U</b>	<b>3</b>
A study of architecture, painting, and sculpture in America. Prereq: Soph standing, and 2002 (202), and English 1110 (110). Not open to students with credit for 330 or 530. GE VPA course.			
<b>4640</b>	<b>Contemporary Art Since 1945</b>	<b>U</b>	<b>3</b>
Visual arts of Europe and the United States from 1945 to the present. Prereq: 2002 (202), or permission of instructor. Not open to students with credit for 541.			
<b>4798.01</b>	<b>Foreign Study in History of Art: Medieval Art in Rome and Florence</b>	<b>U</b>	<b>3</b>
This course traces the development of Christian architecture in Italy from its earliest examples in Rome to the late Middle Ages. We will study examples in Rome, Florence, Pisa, and Siena. The course is organized around intensive reading and instruction in the first week in Columbus, followed by two and a half weeks on-site in Italy looking at these early Christian and medieval buildings. Prereq: Permission of instructor. GE VPA course.			
<b>4798.02</b>	<b>The Arts of Japan</b>	<b>U</b>	<b>3</b>
This study abroad program investigates the art of Japan, with a specific emphasis on art and architecture from the 14th century to the present in Tokyo and Kyoto. Students will spend a week in May on campus doing preparatory coursework, reading and research, and will then travel to Japan for two weeks of intensive study, including seeing artworks, temples, and shrines firsthand. Prereq: Permission of instructor.			
<b>4810</b>	<b>The Arts of China</b>	<b>U</b>	<b>3</b>
An overview of the visual arts of China and their cultural context from prehistoric times to the modern era. Prereq: Soph standing, or permission of instructor. Not open to students with credit for 576. GE VPA and diversity global studies course.			
<b>4815</b>	<b>Modern and Contemporary Chinese Art</b>	<b>U</b>	<b>3</b>
Modern Chinese art (late 19th century to today) with emphasis on artists, artworks, and their social, artistic, institutional, and theoretical contexts. Prereq: Soph standing. Not open to students with credit for 679.			
<b>4820</b>	<b>The Arts of Japan</b>	<b>U</b>	<b>3</b>
Major trends in the visual arts of Japan, from prehistory through the 19th century. Prereq: English 1110 (110) or 111 or equiv. Not open to students with credit for 582. GE VPA and diversity global studies course.			

<b>4825</b>	<b>From Modernism to Manga: Modern and Contemporary Art in Japan</b>	<b>U</b>	<b>3</b>
Explore the arts of Japan from 1868-present, covering a wide range of materials, including sculpture, performance art, photography, contemporary painting, and manga. We will discuss historical & social contexts and the burst of the economic bubble in the 1990s. We will address issues such as gender and representations of the body, the cult of cuteness, and the dynamics of nationalism since 1945. GE VPA and diversity global studies course.			
<b>4998</b>	<b>Undergraduate Scholarship: Research and Creative Activity in History of Art</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research or creative activities in varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research (Honors)</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research or creative activities in varying topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research or creative activities in varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>4999H</b>	<b>Thesis Research Honors</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research or creative activities in varying topics for an Honors thesis project. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>5001</b>	<b>Topics: Western Art</b>	<b>U G</b>	<b>3</b>
Topics to be announced. Repeatable to a maximum of 9 cr hrs.			
<b>5002</b>	<b>Topics in Asian and Non-Western Art</b>	<b>U G</b>	<b>3</b>
Topics to be announced. Repeatable to a maximum of 9 cr hrs.			
<b>5060</b>	<b>Alternative Histories</b>	<b>U G</b>	<b>3</b>
An exploration of the strategies and techniques developed by both academic and non-academic historians to re-imagine the past, with an emphasis on interpreting non-alphabetic traces of the past.			
<b>5222</b>	<b>Later Islamic Art</b>	<b>U G</b>	<b>3</b>
Introduction to the history of Islamic art and architecture in the later period (14th through the 18th centuries) including the Mongol, Timurid, Mamluk, Ottoman, Safavid, and Indo-Muslim art. Prereq: 2001 (201), or 2002 (202), or 2003 (213), or Grad standing, or permission of instructor. Not open to students with credit for 664.			
<b>5312</b>	<b>Art and Archaeology of Ancient Greece</b>	<b>U G</b>	<b>3</b>
This course will explore the art history, archaeology, and material culture of Ancient Greece to the end of the Hellenistic Period (c. 3000-31 BCE). Prereq: 2001 or 2002, or Grad standing, or permission of instructor.			
<b>5322</b>	<b>Roman Art and Archaeology</b>	<b>U G</b>	<b>3</b>
This course will explore the art history, archaeology, and material culture of the Roman Republic and Empire. Students will be encouraged both to consider the wide range of disciplines that contribute to the field of Classical Archaeology, including such sources of evidence as material remains, inscriptions, and literature, and to apply the methodologies of art history, archaeology, anthropology. Prereq: 2001 or 2002, or Grad standing, or permission of instructor. Not open to students with credit for Clas 5322.			
<b>5422</b>	<b>Medieval and Renaissance Manuscript Illumination</b>	<b>U G</b>	<b>3</b>
A chronological survey of Medieval and Renaissance illuminated manuscripts in the West. Prereq: 2001 (201), or Grad standing, or permission of instructor. Not open to students with credit for 652.			
<b>5430</b>	<b>The Age of Giotto</b>	<b>U G</b>	<b>3</b>
Art of the Late Middle Ages in Western Europe in its social context, with new developments and major artists (Giotto, Duccio, Pucelle, Sluter, Parler) emphasized. Prereq: 2001 (201), or Grad standing, or permission of instructor. Not open to students with credit for 628.			
<b>5521</b>	<b>Renaissance Painting in Central Italy</b>	<b>U G</b>	<b>3</b>
A history of the arts of Florence and Rome from 1400 to 1600. Prereq: 2002 (202), or Grad standing, or permission of instructor.			
<b>5531</b>	<b>17th-Century Dutch Art</b>	<b>U G</b>	<b>3</b>
Major artists, including Rembrandt and Vermeer, and developments of 17th century Dutch art examined with a focus on modes of representation and issues of interpretation. Prereq: 2002 (202), or 4531 (533), or Grad standing, or permission of instructor. Not open to students with credit for 632 or 633 prior to Au Qtr 1998.			

## 250 History of Art

<b>5562</b>	<b>Art and History in Early Modern Latin America, 1492-1820</b>	<b>U G</b>	<b>3</b>
Explores the visual culture of early modern Latin America through studies of wide range of objects--from featherwork shields to beadwork "idols" to paintings on paper and canvas--interpreted from a range of disciplinary (art history, anthropology, history) and theoretical perspectives.			
<b>5611</b>	<b>European Art in the Age of Revolution, 1774-1851</b>	<b>U G</b>	<b>3</b>
Survey of major trends in European art from the French Revolution until the middle of the 19th Century. Prereq: 2002 (202), or 4610 (535), or Grad Standing, or permission of instructor. Not open to students with credit for 657.			
<b>5612</b>	<b>European Art in the Age of Empire, 1852-1900</b>	<b>U G</b>	<b>3</b>
Survey of major trends in European art from 1852 until the end of the 19th Century. Prereq: 2002 (202), or 4610 (535), or Grad standing, or permission of instructor. Not open to students with credit for 658.			
<b>5621</b>	<b>Post-Impressionism to Dada</b>	<b>U G</b>	<b>3</b>
Survey of major trends in European art from circa 1880 to the aftermath of World War I. Prereq: 2002 (202), or Grad standing, or permission of instructor. Not open to students with credit for 636.01.			
<b>5622</b>	<b>From Dada to Dictatorship</b>	<b>U G</b>	<b>3</b>
European art between the World Wars: Post-Cubism, Dada and Surrealism, Bauhaus and Constructivism, and Abstraction. Prereq: 2002 (202), or Grad standing, or permission of instructor. Not open to students with credit for 636.02.			
<b>5631</b>	<b>American Painting and Sculpture to 1900</b>	<b>U G</b>	<b>3</b>
History of painting and sculpture in America from colonial times to the end of the 19th century. Prereq: 2002 (202), or English 1110 (110) or 111 or equiv, or Grad standing, or permission of instructor. Not open to students with credit for 637.			
<b>5632</b>	<b>American Painting, Photography and Sculpture from 1900 to the Present</b>	<b>U G</b>	<b>3</b>
American painting, sculpture and photography from 1900 to the present. Prereq: 2002 (202), or English 1110 (110) or 111 or equiv, or Grad standing, or permission of instructor. Not open to students with credit for 638.			
<b>5641</b>	<b>Postmodernism</b>	<b>U G</b>	<b>3</b>
Exploration of the central issues in the claim to the emergence of a distinctly "postmodern" art in the last part of the 20th century. Prereq: 4620 (540), or 4640 (541), or Grad standing, or permission of instructor. Not open to students with credit for 641.			
<b>5643</b>	<b>New Media Art and Theory</b>	<b>U G</b>	<b>3</b>
An investigation of the art and theory of contemporary new media.			
<b>5645</b>	<b>Video Art</b>	<b>U G</b>	<b>3</b>
Introduces students to video as an artistic medium by studying its contentious past, multiple forms, and the trajectories of this expanding field. Prereq: Not open to students with credit for 640.			
<b>5711</b>	<b>Art of India I</b>	<b>U G</b>	<b>3</b>
Art and Architecture of India from Pre-Historic Times to circa 1200. Prereq: Not open to students with credit for 671.			
<b>5815</b>	<b>The Lyric Journey: Chinese Painting of the Tang and Song Periods (618-1279)</b>	<b>U G</b>	<b>3</b>
A survey of Chinese painting from the Tang and Song Periods (618-1279), with emphasis on style, subject matter, and cultural context. Prereq: Soph standing. Not open to students with credit for 678.01.			
<b>5816</b>	<b>Images of the Mind: Chinese Painting of the Yuan and Ming Periods (1279-1644)</b>	<b>U G</b>	<b>3</b>
A survey of Chinese painting from the Yuan and Ming periods, with emphasis on style, subject matter, and cultural context. Prereq: Soph or Grad standing, or permission of instructor. Not open to students with credit for 678.02			
<b>5901</b>	<b>Silent Cinema, 1895-1927</b>	<b>U G</b>	<b>3</b>
A study of the development of silent film as an international art form. Prereq: Soph standing. Not open to students with credit for 647.			
<b>5905</b>	<b>Avant-Garde Cinema</b>	<b>U G</b>	<b>3</b>
A survey of significant historical contributions to avant-garde cinema. Prereq: Jr standing. Not open to students with credit for 650.			
<b>5910</b>	<b>History of Documentary Cinema</b>	<b>U G</b>	<b>3</b>
Historical, chronological survey of significant ideas about and contributions to documentary cinema. Prereq: Jr standing. Not open to students with credit for 653.			
<b>6001</b>	<b>Historical and Conceptual Bases of Art History</b>	<b>G</b>	<b>3</b>
Investigation of intellectual and historical foundations of modern art history. Prereq: 20 or hrs in HistArt. Not open to students with credit for 715.			

<b>6015</b>	<b>Practicum for Graduate Teaching Associates in the History of Art</b>	<b>G</b>	<b>1</b>
A teacher-training and professional development workshop for new Graduate Teaching Associates in Art History. Prereq: Open only to students with a GTA appointment in the department of history of art. Repeatable to a maximum of 2 or hrs. This course is graded S/U.			
<b>7015</b>	<b>Curatorial Studies: Exhibition Histories</b>	<b>G</b>	<b>4</b>
This course examines the art exhibition (from the 19th century to the present) as an exemplary cultural form. It traces the history of modern art through specific exhibitions that have redefined the parameters of art-making, on the one hand, and its reception on the other, defining along the way the terms that inform curatorial practice. Prereq: Grad standing.			
<b>7020</b>	<b>Curatorial Elective</b>	<b>G</b>	<b>4</b>
Courses offered under this number serve as electives within the Contemporary Art and Curatorial Practice program. They are designed to examine specific curatorial topics, and are sometimes offered in conjunction with current exhibitions. Prereq: Grad standing. Repeatable to a maximum of 12 or hrs.			
<b>7189.01</b>	<b>Curatorial Practicum: Exhibition Planning</b>	<b>G</b>	<b>2</b>
This course is intended to give students in the Contemporary Art and Curatorial Practices MA program the opportunity to design and prepare an exhibition. Prereq: Students must be in their final year of the MA program in Contemporary Art and Curatorial Practice. This course is graded S/U.			
<b>7189.02</b>	<b>Curatorial Practicum: Exhibition Execution</b>	<b>G</b>	<b>4</b>
This course is intended to give students in the Contemporary Art and Curatorial Practices MA program the opportunity to install an exhibition of their own design and to write the accompanying catalog essays. Prereq: 7189.01. This course is graded S/U.			
<b>7191</b>	<b>Curatorial Internship</b>	<b>G</b>	<b>2</b>
HA 7191 is a formal independent study undertaken with the support and collaboration of institutions in the Columbus area and beyond. Students receive hands-on, practical training in the operations of the curatorial departments in arts institutions, be they collecting museums, contemporary kunsthalls, independent galleries, or alternative art spaces. The course is administered by a faculty member. Prereq: Permission of instructor. This course is graded S/U.			
<b>8000</b>	<b>Topics in Art History</b>	<b>G</b>	<b>3</b>
A graduate-level equivalent of a course being offered at the 500-level. Prereq: Grad standing. Not open to students with credit for 890. Repeatable to a maximum of 6 or hrs.			
<b>8001</b>	<b>Studies in Art Theory and Criticism</b>	<b>G</b>	<b>4</b>
Investigations of theories of art and their applications. Prereq: 5640 (600), or permission of instructor. Not open to students with credit for 839 or 710. Repeatable to a maximum of 12 or hrs.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Advanced study for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 9 completions. This course is graded S/U.			
<b>8401</b>	<b>Studies in Medieval Art</b>	<b>G</b>	<b>4</b>
Selected problems in architecture, painting, sculpture, and the minor arts from the Early Christian through Byzantine and Gothic periods. Repeatable to a maximum of 12 or hrs.			
<b>8521</b>	<b>Studies in Italian Renaissance Art</b>	<b>G</b>	<b>4</b>
Advanced study and specialized research on topical problems in the painting, sculpture, and architecture of Italy in the 14th, 15th, and 16th centuries. Repeatable to a maximum of 12 or hrs.			
<b>8561</b>	<b>Studies in Latin American Art</b>	<b>G</b>	<b>4</b>
Advanced study and specialized research on topical issues in Latin American Art. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 or hrs.			
<b>8601</b>	<b>Studies in Modern Art</b>	<b>G</b>	<b>4</b>
Advanced study and specialized research on topical problems in the art of the United States or modern Europe. Prereq: Grad level course in Modern Art, or permission of instructor. Repeatable to a maximum of 12 or hrs.			
<b>8631</b>	<b>Studies in American Art</b>	<b>G</b>	<b>4</b>
Problems in American art. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs.			
<b>8641</b>	<b>Wexner Seminar</b>	<b>G</b>	<b>1 - 4</b>
Graduate seminar offered in conjunction with Wexner exhibitions, performance series, media series, or symposia; may be taught by visiting artists, performers, or critics. Repeatable to a maximum of 12 or hrs or 12 completions. Cross-listed in CompStd 8891.			
<b>8811</b>	<b>Studies in Chinese Art</b>	<b>G</b>	<b>4</b>
Advanced study and specialized research in the history of Chinese art. Prereq: 5811 (677), 5815 (678), or 5816, or permission of instructor. Repeatable to a maximum of 12 or hrs.			

<b>8821</b>	<b>Studies in Japanese Art</b>	<b>G</b>	<b>4</b>
Advanced study and specialized research in the history of Japanese art. Prereq: 5821 (681), 5822 (682), or 8821 (780), or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>8901</b>	<b>Cinema Studies</b>	<b>G</b>	<b>4</b>
Intensive studies of specific movements, artists, periods and theories of cinema. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>8999</b>	<b>Dissertation Research in History of Art</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			

### Honors, University

<b>1891</b>	<b>Eminence First Year Seminar</b>	<b>U</b>	<b>0</b>
This seminar offers new Eminence Fellows a venue to build community and increase resilience in college by providing Eminence specific academic, personal, and life management tools needed to function effectively as a first year Eminence Fellow. Fellows will understand and be able to utilize the Clifton Strengths Assessment as a tool to help develop a team dynamic as well as their own personal path. Prereq: First-year student in the Eminence Fellows Program. This course is graded S/U.			
<b>1892</b>	<b>Eminence Second Year Seminar</b>	<b>U</b>	<b>0</b>
You will actively engage in the development of a personal vision and mission for your future. You will craft a strengths-based, professional mission statement. You will investigate opportunities aimed at polishing your presentation and writing skills, identify best-fit graduate and professional programs, and understand the intricacies of faculty interaction on many levels.			
<b>2296H</b>	<b>University Honors Proseminar</b>	<b>U</b>	<b>1 - 3</b>
Designed to foster an understanding of concepts, issues, and problems which transcend the boundaries of a single discipline; topic varies. Prereq: Honors standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>2396H</b>	<b>London Honors</b>	<b>U</b>	<b>3</b>
An introduction to British life and culture. Students study the formation of British rule, political structures, immigration, diversity, global position, art, and literature and how these experiences have shaped the worldviews, beliefs, policies, and practices of English society. At the end of the semester, students participate in a week long study abroad in London/England. Prereq: Honors standing, and enrollment in London Honors program, and permission of department. GE education abroad course.			
<b>2596H</b>	<b>Interdisciplinary and Collaborative Research</b>	<b>U</b>	<b>3</b>
Provides an introduction to and practicum on interdisciplinary and collaborative research and creative activity. Students separate into teams and execute a project of their own, the results of which will be shared in the final weeks of the semester. The students, guided by faculty, will formulate projects that relate specifically to the Ohio State University. Prereq: Honors standing. GE cross-disciplinary seminar.			
<b>3596H</b>	<b>University Honors Seminar</b>	<b>U</b>	<b>1 - 3</b>
University Honors Seminar. Prereq: Honors standing. Repeatable to a maximum of 9 cr hrs or 3 completions.			

### Horticultural Technology

<b>1201T</b>	<b>Exploring Horticulture</b>	<b>U</b>	<b>½</b>
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.			
<b>2110T</b>	<b>Plant Materials I</b>	<b>U</b>	<b>3</b>
Plant identification course to include: trees, shrubs, evergreens, vines, annuals, perennials and tropical plants common to the Midwest covering: identification, morphology, classification, nomenclature and adaptability. A grade of C or better required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. Prereq: Not open to students with credit for 243T and 244T. This course is available for EM credit.			
<b>2120T</b>	<b>Plant Materials II</b>	<b>U</b>	<b>3</b>
Plant identification including: less common deciduous and evergreen trees, shrubs, vines and herbaceous plants common to the Midwest covering: identification, morphology, classification, nomenclature and adaptability. A grade of C or better is required to meet graduation requirements for Landscape Horticulture. Prereq: Not open to students with credit for 243T and 244T. This course is available for EM credit.			
<b>2140T</b>	<b>Horticultural Photography</b>	<b>U</b>	<b>1</b>
Introductory digital photography and image editing course emphasizing composition, lighting, and exposure. Digital correction and editing with emphasis on horticultural marketing and portfolio development. Prereq: Not open to students with credit for 270T. This course is available for EM credit.			

<b>2189.10T</b>	<b>Practicum in Floral Design</b>	<b>U</b>	<b>1 - 2</b>
Supervised experiences in floral design and flower shop work. A grade of C or better is required to meet graduation requirements. Prereq: 2600T. Repeatable to a maximum of 4 cr hrs or 4 completions.			
<b>2189.21T</b>	<b>Practicum in Greenhouse Management</b>	<b>U</b>	<b>1</b>
Supervised experiences in greenhouse crop production. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.			
<b>2189.22T</b>	<b>Practicum in Nursery Management</b>	<b>U</b>	<b>1</b>
Supervised experiences in nursery crop production and management. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.			
<b>2189.30T</b>	<b>Practicum in Landscape Horticulture</b>	<b>U</b>	<b>1 - 2</b>
Supervised experiences in landscape maintenance work. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.			
<b>2189.50T</b>	<b>Turfgrass Management Practicum</b>	<b>U</b>	<b>1</b>
Practical experience in supervised horticultural/turfgrass laboratories, with emphasis on developing and improving competencies related to classroom, laboratory and career activities. A grade of C or better is required to meet graduation requirements. Prereq: Open to Turfgrass Management major. Repeatable to a maximum of 3 cr hrs.			
<b>2190.10T</b>	<b>Practical Leadership in Floral Design</b>	<b>U</b>	<b>1 - 2</b>
Supervised experiences in flower shop leadership and management. A grade of C or better is required to meet graduation requirements. Prereq: 2189.10T (264T and 268T). Repeatable to a maximum of 2 cr hrs or 2 completions.			
<b>2190.21T</b>	<b>Practical Leadership in Greenhouse Management</b>	<b>U</b>	<b>1</b>
Supervised experiences in greenhouse leadership and management. A grade of C or better is required to meet graduation requirements. Prereq: 2189.21T. Repeatable to a maximum of 2 cr hrs.			
<b>2191.10T</b>	<b>Floral Design and Marketing Internship</b>	<b>U</b>	<b>1 - 2</b>
Employment in the floral industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 1201T and 2620T (264T). Repeatable to a maximum of 4 cr hrs or 4 completions.			
<b>2191.21T</b>	<b>Greenhouse Management Internship</b>	<b>U</b>	<b>1 - 3</b>
Employment in the greenhouse industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 1201T, 2189.21T, and 2500T. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>2191.22T</b>	<b>Nursery Management Internship</b>	<b>U</b>	<b>3</b>
Employment in the nursery industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 1201T and 2189.22T. Repeatable to a maximum of 6 cr hrs.			
<b>2191.23T</b>	<b>Greenhouse Engineering Technology Internship</b>	<b>U</b>	<b>3</b>
Experience of employment in the greenhouse industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty. A grade of 'C' or better required to meet graduation requirements for Greenhouse and Nursery Management Greenhouse Engineering Technology specialization. Prereq: 1201T, 2189.21T, and 2500T. Repeatable to a maximum of 6 cr hrs.			
<b>2191.30T</b>	<b>Landscape Horticulture Internship</b>	<b>U</b>	<b>3</b>
Employment in the landscape industry structured to provide varied occupational experiences. Supervised by an industry employer and coordinated by faculty. A grade of C or better is required to meet graduation requirements. Prereq: 1201T (230T); a grade of C or above in 2110T (244T); GPA 2.0 or above. Repeatable to a maximum of 6 cr hrs.			
<b>2191.50T</b>	<b>Turfgrass Management Internship</b>	<b>U</b>	<b>3</b>
Employment in turfgrass management industry at an approved facility structured to provide varied occupational experiences. Supervised by an industry professional and coordinated by faculty. A grade of C or better required to meet graduation requirements. Prereq: A grade of C or above in 2225T (289.05T and EngTech 219T), 2230T (223T) and 2250T (225T), and CPHR 2.0 or above. Repeatable to a maximum of 6 cr hrs.			
<b>2191.55T</b>	<b>Turfgrass Equipment Manager Internship</b>	<b>U</b>	<b>2</b>
Employment in turfgrass equipment management industry at an approved facility structured to provide varied occupational experiences. Supervised by an industry professional and coordinated by faculty. A grade of C or above required to meet graduation requirements. Prereq: A grade of C or above in 2225T and 2227T.			
<b>2193T</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			

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<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>2225T</b>	<b>Turf Equipment Operation and Maintenance</b>	<b>U</b>	<b>3</b>
Principles and practices of turf facilities organization and management, equipment maintenance, operation, safety and fleet management. A grade of C or better required to meet graduation requirements for Turfgrass Management. Prereq or concur: GenMath 1040T or Math 1050 or math placement level R or higher.			
<b>2227T</b>	<b>Turfgrass Reel Mower Maintenance</b>	<b>U</b>	<b>3</b>
Theory, configuration, and maintenance of turfgrass reel mower cutting units, including a study of the bedknife attitude, spin vs relief grinding, backlapping, bedknife selection.			
<b>2230T</b>	<b>Fundamentals of Turfgrass Science and Management</b>	<b>U</b>	<b>3</b>
Identification, growth and development characteristics and responses, uses, and fundamental practices essential to the production and management of fine quality turf. A grade of C or better required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. Prereq or concur: GenBiol 1250T and GenMath 1040T or Math 1050 or math placement level R or higher. This course is available for EM credit.			
<b>2240T</b>	<b>Golf Course and Sports Turf Irrigation and Drainage</b>	<b>U</b>	<b>3</b>
Principles of design, selection, installation, maintenance, and operation of equipment and materials used in golf course and sports turfgrass irrigation and drainage systems. A grade of C or better required to meet graduation requirements for Turfgrass Management. Prereq: GenMath 1040T or Math 1050 or math placement level R or higher.			
<b>2250T</b>	<b>Turfgrass Cultural Systems and Practices</b>	<b>U</b>	<b>3</b>
A study of cultural and environmental factors related to maintaining fine turfgrasses with special emphasis on mathematical calculations and materials applications. A grade of C or better required to meet graduation requirements for Turfgrass Management. Prereq: 2225T (EngTech 219T), 2230T (223T). Not open to students with credit for 225T.			
<b>2260T</b>	<b>Sports Turf Operations Organization and Management</b>	<b>U</b>	<b>3</b>
Specialized course in sports turf management including the organization, design, construction, equipment, field surface quality, safety, personnel, finances, renovation, and maintenance of a sports turf facility. A grade of C or better required to meet graduation requirements for Turfgrass Management. Prereq: 2191.50T (290.05T), BioTech 2218T (218T). Prereq or concur: 2880T (272T) or 2890T (274T).			
<b>2270T</b>	<b>Golf Course Organization and Management</b>	<b>U</b>	<b>3</b>
Specialized course in golf course management including the organization, design, construction, equipment, personnel, finances, and maintenance of the golf course. A grade of C or better required to meet graduation requirements for Turfgrass Management. Prereq: 2191.50T (290.05T), BioTech 2218T (218T). Prereq or concur: 2880T (272T) or 2890T (274T). Not open to students with credit for 227T.			
<b>2320T</b>	<b>Landscape Construction</b>	<b>U</b>	<b>3</b>
Techniques for building, pricing, bidding and installing various landscape plantings, features and structures including (but not limited to): pavers, retaining walls and wooden structures. A grade of 'C' or better required to meet graduation requirements for Landscape Horticulture. Prereq: GenMath 1040T or Math 1050 or math placement level R or better. This course is available for EM credit.			
<b>2360T</b>	<b>Landscape Design</b>	<b>U</b>	<b>3</b>
Introduction to landscape drafting, CAD, design and planning emphasizing the design program, form composition, drafting techniques, design representation and 2 and 3-dimensional CAD. A grade of C or better required to meet graduation requirements for Landscape Horticulture. Prereq or concur: 2110T. Not open to students with credit for 231T.			
<b>2410T</b>	<b>Sustainable Nursery Management and Production</b>	<b>U</b>	<b>4</b>
Principles of sustainable nursery management, marketing and production operations with an emphasis on nursery facilities and practices necessary to produce field grown and container nursery stock. Prereq: 2120T; and GenBiol 1250T (125T) or Biology 1113 (113). Not open to students with credit for 241T and 242T.			
<b>2420T</b>	<b>Garden Center Management</b>	<b>U</b>	<b>2</b>
Principles of retail garden center management including sales, marketing, advertising, personnel management, customer relations and management of product lines, stock and displays. Prereq: 2120T. Not open to students with credit for 248T.			
<b>2500T</b>	<b>Greenhouse Environment Control</b>	<b>U</b>	<b>4</b>
Principles and practices of sustainable greenhouse operation and management. Topics include glazings, frames, heating, cooling, energy conservation, nutrition, irrigation, light, plant growth and operations management. A grade of C or better required to meet graduation requirements in Greenhouse and Nursery Management Nursery Specialization. This course is available for EM credit.			

<b>2520T</b>	<b>Greenhouse Perennial Production</b>	<b>U</b>	<b>3</b>
Principles and practices of greenhouse perennial plant production, including propagation, vernalization, photoperiodic treatments, production techniques, integrated pest and plant health management, and post-harvest marketing. Prereq: 2500T (251T). Not open to students with credit for 255T. This course is available for EM credit.			
<b>2540T</b>	<b>Greenhouse Production of Annuals</b>	<b>U</b>	<b>3</b>
Principles and practices of greenhouse bedding and flowering container plant production, including propagation, transplanting, nutrition, environmental requirements, height control, harvesting, pests, pathogens and post-harvest marketing. Prereq: 2500T.			
<b>2560T</b>	<b>Greenhouse Vegetable Production</b>	<b>U</b>	<b>3</b>
Principles and practices of greenhouse vegetable crop production, including propagation, production systems, nutrition, environmental requirements, management practices, harvesting, pests, pathogens, food safety and post-harvest handling. Prereq: 2500T.			
<b>2600T</b>	<b>Commercial Floral Design</b>	<b>U</b>	<b>4</b>
A basic course introducing the elements and principles of floral design as they relate to the construction of saleable flower arrangements and corsages. Prereq: Not open to students with credit for 262T and 264T. This course is available for EM credit.			
<b>2620T</b>	<b>Retail Flower Shop Operation</b>	<b>U</b>	<b>2</b>
Principles and practices of management and operation of a retail flower shop with emphasis on purchasing, pricing, merchandising, selling, delivery and wire services. Prereq: 2600T. This course is available for EM credit.			
<b>2640T</b>	<b>Flowers for Celebrations</b>	<b>U</b>	<b>4</b>
A specialized course dealing with consulting, planning, organizing and creating floral designs and decor for wedding ceremonies and receptions, parties, and celebrations of life. Prereq: 2600T (262T and 264T). Not open to students with credit for 265T and 269T.			
<b>2660T</b>	<b>Post-Harvest Flower Care</b>	<b>U</b>	<b>2</b>
Principles and practices of post-harvest flower care from producer to consumer with emphasis on identification and proper care and handling at the retail level. Prereq: 2640T. Concur: 2680T. Not open to students with credit for 263T. This course is available for EM credit.			
<b>2680T</b>	<b>Contemporary Floral Design</b>	<b>U</b>	<b>3</b>
An advanced course emphasizing the artistic nature of floral design with a global perspective of contemporary styles, techniques and trends. Prereq: 2640T. Concur: 2660T. Not open to students with credit for 267T.			
<b>2740T</b>	<b>Plant Propagation</b>	<b>U</b>	<b>4</b>
Principles, techniques, skills, materials, and facilities used to propagate herbaceous and woody plants with emphasis on commercial propagation methods. Prereq: GenBiol 1250T or Biology 1113 or HCS 2202.			
<b>2880T</b>	<b>Principles of Weed Science</b>	<b>U</b>	<b>3</b>
A study of weed classification, ecology, plant competition, herbicide formulation, properties and uses of herbicides and weed management in horticultural crops. A grade of C or better required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. Prereq: GenBiol 1250T (125T). Prereq or concur: GenChem 1100T (131T). Not open to			
<b>2890T</b>	<b>Plant Diseases of Ornamentals and Turf</b>	<b>U</b>	<b>3</b>
Principles and practices in diagnosing and treating plant diseases on woody ornamentals and turf. A grade of C or better required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. Prereq: 2110T or 2120T or 2230T; GenBiol 1250T. This course is available for EM credit.			
<b>3550T</b>	<b>Components of Greenhouse Technologies</b>	<b>U</b>	<b>3</b>
A study of selected components of modern greenhouse technology, including electric motors, automated material handling and watering controls, pesticide application, and supplemental lighting. Prereq: 2500T; GenMath 1145T; EngTech 2312T and 2322T. This course is available for EM credit.			
<b>3560T</b>	<b>Integrated Greenhouse Climate Control</b>	<b>U</b>	<b>4</b>
Computerized climate control for greenhouse plant production, including data acquisition and control basics, use of the data, and climate control strategies for improved production efficiency. Prereq: 2500T and 3550T. This course is available for EM credit.			

## Horticulture and Crop Science

<b>1100</b>	<b>Exploring Sustainable Plant Sciences and Prof Golf Mgt</b>	<b>U</b>	<b>½</b>
Basic understanding of the global trends within sustainable plant systems and professional golf management, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.			

## Horticulture and Crop Science 253

<b>1101</b>	<b>Plant Parenting</b>	<b>U</b>	<b>2</b>
This course demonstrates how propagating, growing, and caring for plants is based on scientific principles that are appreciated by developing skills in plant parenting. By the end of the term, students should be confident in their ability to grow a wide variety of houseplants and some popular garden plants.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Special group studies in the area of horticulture and crop science. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>2200</b>	<b>The World of Plants</b>	<b>U</b>	<b>3</b>
Study of the cultivation, environmental, genetic, and social/cultural factors which influence the sustainable production of plants for food, fiber, ornamental and recreational uses. This course is available for EM credit. GE nat sci bio course.			
<b>2201</b>	<b>Ecology of Managed Plant Systems</b>	<b>U</b>	<b>4</b>
Origin, diversification, and biogeography of plants inhabiting managed landscapes. GE nat sci bio course.			
<b>2201E</b>	<b>Ecology of Managed Plant Systems</b>	<b>U</b>	<b>4</b>
Origin, diversification, and biogeography of plants inhabiting managed landscapes. Prereq: Honors standing. GE nat sci bio course.			
<b>2202</b>	<b>Form and Function in Cultivated Plants</b>	<b>U</b>	<b>4</b>
An introduction to plant growth and development with special emphasis on structure function relationships important to productivity and quality in cultivated plants. Prereq: Not open to students with credit for 300, 300E, 310, 315, or PlntBio 300. GE nat sci bio course.			
<b>2202E</b>	<b>Form and Function in Cultivated Plants</b>	<b>U</b>	<b>4</b>
An introduction to plant growth and development with special emphasis on structure function relationships important to productivity and quality in cultivated plants. Prereq: Honors standing. Not open to students with credit for 300, 300E, 310, 315, or PlntBio 300. GE nat sci bio course.			
<b>2250</b>	<b>Introduction to Professional Golf Management</b>	<b>U</b>	<b>2</b>
Acquaints students with the PGM program, including program facilities and resources, components of the PGA/PGM Program, golf history, PGA Constitution, Career Enhancement, Golf Operations, and Customer Relations. Prereq: Not open to students with credit for 250 or 350.04.			
<b>2260</b>	<b>Data Analysis and Interpretation for Decision Making</b>	<b>U</b>	<b>3</b>
Basic concepts of probability and statistics applied to the interpretation of quantitative data. Prereq: Math 1130 or higher. Not open to students with credit for AEDecon 2005, AnimSc 2260, ComLdr 3537, ENR 2000, or Stat 1450. GE data only course.			
<b>2270</b>	<b>Historical Perspectives on Golf Course Design and Management</b>	<b>U</b>	<b>2</b>
A historical survey of golf course design and management and its effect on contemporary design and management.			
<b>2300</b>	<b>Introduction to Hydroponics</b>	<b>U</b>	<b>1</b>
This hands-on intensive course will introduce students to soilless hydroponic crop production. The course will provide basic information on key components of hydroponics, different systems adopted for different crop species, as well as ideas of implementing them in commercial settings, home gardening as well as school science teaching programs.			
<b>2305</b>	<b>Organic Gardening</b>	<b>U</b>	<b>1</b>
An overview and assessment of organic gardening practices for sustenance and recreation. Prereq: Not open to students with credit for 305.			
<b>2306</b>	<b>Sustainable Vegetable Production Practicum: Planning, Growing and Marketing</b>	<b>U</b>	<b>3</b>
Provides students with an introduction to small-scale vegetable farm planning and management through consideration of plant growth and production, farm design, farm management and operations, and produce marketing. Prereq: Not open to students with credit for 213.			
<b>2307</b>	<b>Sustainable Agriculture Practical Experience</b>	<b>U</b>	<b>2</b>
This course will introduce students to basic theory, practical skills, and tools associated with small-scale sustainable agriculture and farm enterprises. Topics will include soil management, tools and infrastructure, crop management, weed and pest management, enterprise management, and teamwork and leadership and will center on small-scale vegetable production. Repeatable to a maximum of 4 or hrs.			
<b>2340.01</b>	<b>Woody Ornamental Plants</b>	<b>U</b>	<b>3</b>
A survey of the most important woody ornamentals used in horticulture in the Midwest U.S. Weekly lectures will emphasize ornamental attributes, usage and management. Weekly plant walks (outdoor lecture) will emphasize plant identification. Prereq: Not open to students with credit for 234.			
<b>2340.02</b>	<b>Herbaceous Ornamental Plants</b>	<b>U</b>	<b>3</b>
A survey of the most important annual and perennial herbaceous ornamentals used in horticulture in the Midwest U.S. Weekly lectures will emphasize ornamental attributes, usage and management. Weekly plant walks (outdoor lectures) will emphasize plant identification.			

<b>2401</b>	<b>Sustainable Landscape Design I</b>	<b>U</b>	<b>3</b>
An introduction to sustainable landscape design for residential and small scale properties with an emphasis on principles of design and graphic communication. Prereq or concur: 2340. Not open to students with credit for 204.			
<b>2501</b>	<b>Basic Golf Club Design and Repair</b>	<b>U</b>	<b>1</b>
Introduces students to fundamentals of modern golf club design and provides hands-on experience in basic golf club repair skills. Prereq: Not open to students with credit for 3501 or 350.01, or students enrolled in the Professional Golf Management program.			
<b>2502</b>	<b>Understanding the Rules of Golf and Golf Etiquette</b>	<b>U</b>	<b>1</b>
The course is designed to provide students the opportunity to learn the rules of golf and etiquette in detail so they can be better educated players and golf spectators.			
<b>3100</b>	<b>Introduction to Agronomy</b>	<b>U</b>	<b>3</b>
An introductory course of row crop and forage agricultural production (agronomy). This course introduces students to row and forage crop species common in Ohio and surrounding states, and provides fundamental information on how these crops are managed in the region. Management aspects include site preparation, seasonality of management activities, and fundamentals of nutrient and pest management.			
<b>3200</b>	<b>Introduction to Horticulture</b>	<b>U</b>	<b>3</b>
An introduction to the principles and practices of production and landscape horticultural science and the horticulture industry in Ohio and the USA. Emphasis on the diversity of crops, production systems, diversity of the horticulture industry and an introduction for students to possible careers in horticulture in Ohio and the USA.			
<b>3220</b>	<b>Crop Origins and Diversity</b>	<b>U</b>	<b>2</b>
A survey of plant taxonomy including principles of nomenclature and classification. Students will learn important botanical characteristics of major plant families. Course emphasis is on plant taxa of economic importance in horticulture and agricultural production.			
<b>3310</b>	<b>Crop Responses to the Environment</b>	<b>U</b>	<b>3</b>
The physiological basis of crop responses to abiotic and biotic environmental factors. Prereq: 2202 or 2202E, and Biology 1113 or 1113H.			
<b>3320</b>	<b>Plant Propagation: The Manipulation of Plant Reproduction</b>	<b>U</b>	<b>3</b>
Principles, methods, and facilities involved in the sexual and asexual multiplication of plants. Credit for 2201 highly recommended prior to enrollment. Prereq: 2202. Not open to students with credit for 320.			
<b>3370</b>	<b>Sports Turf Management</b>	<b>U</b>	<b>2</b>
Issues pertaining to sports field management including playing surface preparation, safety and playing quality, field maintenance and renovation techniques, sports turf IPM practices and administration. This course is available for EM credit.			
<b>3380</b>	<b>The Latino Workforce in Land Based Industries</b>	<b>U</b>	<b>2</b>
Current issues faced by immigrant workers in agriculture and the cultural, historical and legal context affecting work relations with their American supervisors. Au Sem; even years. Prereq: Not open to students with credit for 380.			
<b>3410</b>	<b>Sustainable Landscape Maintenance Practices</b>	<b>U</b>	<b>2</b>
An integrated approach to the sustainable maintenance of constructed landscapes - residential, commercial, and institutional, combining research based knowledge with field experience in maintenance practices. Prereq: 2201 or 2202.			
<b>3420</b>	<b>Seed Science</b>	<b>U</b>	<b>3</b>
A study of the physiological processes of seed formation, dormancy, and germination; the production and marketing of seed in commerce. Prereq: 2201 or 2202, or permission of instructor. Not open to students with credit for 420.			
<b>3438</b>	<b>Theme and Specialty Gardens</b>	<b>U</b>	<b>2</b>
Study of the principles and techniques of theme and specialty gardening. Prereq: 2201. Not open to students with credit for 438.			
<b>3470</b>	<b>Introduction to Turfgrass Management</b>	<b>U</b>	<b>3</b>
Adaptation, identification, uses, growth characteristics, growth responses, and fundamental principles essential to the production of quality turf.			
<b>3475</b>	<b>Turf Management for Golf Course Managers</b>	<b>U</b>	<b>3</b>
Survey of the cultural and management practices important in the daily agronomic operations of a golf course.			
<b>3488.01</b>	<b>Professional Development</b>	<b>U</b>	<b>1</b>
Participation in structured co-curricular programs leading to professional development. Prereq: GPA 2.00 or above, and permission of instructor. Repeatable to a maximum of 3 or hrs. This course is graded S/U.			
<b>3488.02</b>	<b>PGM Player Development</b>	<b>U</b>	<b>1</b>
Focus on assisting students who have not passed the PGA of America's Playing Ability Test. Encompasses golf skills evaluation, mental approach, development of a corrective action plan and re-evaluation of skills progress. Prereq: Permission of instructor. Repeatable to a maximum of 3 or hrs. This course is graded S/U.			

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### 3501 PGM Basic Golf Operations U 2

This course encompasses learning objectives and materials pertaining to Checkpoint 1 of the PGA of America's PGA/PGM program including tournament operations, golf car fleet management, rules of golf and introduction to teaching.

Sp Sem. Prereq: 2250. Not open to students with credit for 350.01, 350.02, or 350.03.

### 3502 PGM Club Design, Performance, Fitting and Repair U 2

This course encompasses learning objectives and work experience-related materials pertaining to Checkpoints 1 and 2 of the PGA of America's PGA/PGM Program including golf club design, performance, fitting and repair.

Sp Sem. Prereq: 2250 and 3501. Not open to students with credit for 350.01 and 350.05.

### 3521 Greenhouse Systems and Management U 2

Introduction to greenhouse systems, structural designs, controlled environment technologies, and management practices to commercially grow ornamental and vegetable crops under a controlled environment.

Prereq: 2200, 2201, or 2202. Not open to students with credit for 5521.

### 4191.01 Sustainable Plant Systems Major Internship U 2

Gives students an overview of the variety of internships available as well as their importance in career selection. Students will rate their internships on their educational value and help comprehend post graduation HCS career options.

Prereq or concur: FAES 3191, enrollment in Sustainable Plant Systems major, and permission of instructor.

### 4191.02 PGM Internship U 1

Real world job experience at golf courses, clubs, or resorts. Students are mentored by the on-site PGA professional and must complete specified written Work Experience Activities. Must be enrolled while on internship.

Prereq: 2250 (250), and enrollment in Pre-Professional or Professional Golf Management majors. Repeatable to a maximum of 5 completions.

### 4193 Individual Studies U 1 - 3

Special studies in the field of horticulture and crop science.

Prereq: GPA 2.50 or above, and permission of instructor. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.

### 4194 Group Studies U 1 - 3

Special group studies in the area of horticulture and crop science.

Repeatable to a maximum of 6 cr hrs or 6 completions.

### 4300 Hydroponic Crop Production U 2

This course will offer students the foundational understanding of the greenhouse food crop production technologies and practices and introduction to the science behind them. Lectures will overview the history and basic principles of greenhouse crop production using soilless (hydroponics) approach. Students will learn conventional/advanced production technologies and more.

Prereq: 2202 or 2202E, and 2260 or equiv.

### 4301 Hydroponic Crop Production Lab U 1

Greenhouse laboratory course associated with the concurrent lecture course on Hydroponic Crop Production (HCS 4300 In-person or Online) will provide hands-on practices on greenhouse hydroponic crop production - leafy crops, micro-greens, tomato, and more using crop production facilities similar to commercial production settings.

Concur: 4300.

### 4325 Plant Genetics U 3

A study of plant transmission and functional genetics and their role in crop improvement.

Prereq: 2200 (200) or 2201 or 2202 or 300 or MolGen 3300 (PlntBio 300); and Chem 1110 (101) or 1210 (121); and Biology 1101 (101) or 1113 (113), or MolGen 1101 (PlntBio 101). Not open to students with credit for 325.

### 4501.01 PGM Advanced Professional Experience I U 1

Enhances professional development for students intending a career within the golf industry.

While on this experience, students will complete specified Advanced Professional Experience activities. Students will learn about career opportunities and better understand the types of tasks/challenges associated with a career in professional golf management.

Prereq: 2250, and PGM major or pre-major. Concur: 4191.02. This course is graded S/U.

### 4501.02 PGM Advanced Professional Experience II U 1

Enhances professional development for students intending a career within the golf industry.

While on this experience, students will complete specified Advanced Professional Experience activities. Students will learn about career opportunities and better understand the types of tasks/challenges associated with a career in professional golf management.

Prereq: 4501.01, and PGM major or pre-major. Concur: 4191.02. This course is graded S/U.

### 4501.03 PGM Advanced Professional Experience III U 1

Enhance professional development for students intending a career within the golf industry.

While on this experience, students will complete specified Advanced Professional Experience activities. Students will learn about career opportunities and better understand the types of tasks/challenges associated with a career in professional golf management.

Prereq: 4501.02, and PGM major or pre-major. Concur: 4191.02. This course is graded S/U.

### 4501.04 PGM Advanced Professional Experience IV U 1

Enhances professional development for students intending a career within the golf industry.

While on this experience, students will complete specified Advanced Professional Experience activities. Students will learn about career opportunities and better understand the types of tasks/challenges associated with a career in professional golf management.

Prereq: 4501.03, and PGM major or pre-major. Concur: 4191.02. This course is graded S/U.

### 4501.05 PGM Advanced Professional Experience V U 1

Enhances professional development for students intending a career within the golf industry.

While on this experience, students will complete specified Advanced Professional Experience activities. Students will learn about career opportunities and better understand the types of tasks/challenges associated with a career in professional golf management.

Prereq: 4501.04, and PGM major or pre-major. Concur: 4191.02. This course is graded S/U.

### 4503 PGM Advanced Teaching and Swing Analysis U 2

This course encompasses learning objectives and work experience-related materials pertaining to Checkpoints 2 and 3 of the PGA of America's PGA/PGM Program including swing concepts, analysis of the golf swing, and philosophy of teaching.

Prereq: 2250, 3501, and 3502.

### 4504 Advanced Golf and Turf Operations U 3

Use a golf facility as a "model system" to apply a case study approach to demonstrate that golf professionals and turfgrass specialists must work together to meet the needs of their customers and supervisors. Golf professionals and turfgrass specialists have the common need to prepare integrated business plans. Capstone.

Prereq: 3470 or 3475. Not open to students with credit for 350.04 or 350.07.

### 4560 Creating a Virtual Perspective U 3

Examine a variety of open source and Web 2.0 communication technologies applicable to turf, landscape and other professionals. Identify issues related to authoring, delivering, and integrating applications into a professional social network.

Prereq: Not open to students with credit for 560.

### 4570 Turfgrass Management and Science U 3

The course is designed to provide students with the principles based in ecology and plant physiology to manage intensively managed turfgrass systems in a holistic framework. Through the understanding of ecological principles that apply to turfgrass and the understanding of how turfgrass plants grow, the student will be able to develop management practices based on sound scientific grounds.

Prereq: 3470 or 3475.

### 4600 Capstone U 2

Examination of issues related to economic viability, social and ethical responsibility, environmental compatibility, and production efficiency of HCS-related enterprises to prepare students for transition from university to workplace.

Prereq: Sr standing in Sustainable Plant System or Professional Golf Management major. Not open to students with credit for 600 or 601.

### 4998 Undergraduate Research U 1 - 5

Undergraduate research in Horticulture and Crop Science may take place in a laboratory, greenhouse, and/or field setting at The Ohio State University in Columbus, Wooster, and/or outlying branch farms. HCS 4998 should not be taken for Research with Distinction.

Repeatable to a maximum of 12 cr hours or 4 completions. This course is graded S/U.

### 4999 Research with Distinction U 1 - 3

Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum.

Prereq: CPHR 3.00 or above, and GPA 3.00 or above in major, and permission of project supervisor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

### 4999H Honors Research with Distinction U 1 - 3

Conducting and reporting research with distinction. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman University Undergraduate Research Forum.

Prereq: Honors standing, and FAES 4590.01H (590H), and GPA 3.4 or above. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.

### 5097.03 Chile Study Abroad Pre Departure U G 1

This is a pre departure program for students enrolled in Agriculture & Agro Ecosystems in Chile.

### 5100 Advanced Cropping Systems U G 3

Students will examine issues related to economic and environmental sustainability, legal and ethical responsibility, and production efficiency to help students transition to being professionals. Students will apply their knowledge regarding row and forage crop management to address production issues. Students will practice communication through enhanced analytical thinking experiences.

Prereq: 3100, or Grad standing.

### 5194 Group Studies U G 1 - 3

Special group studies in the area of horticulture and crop science.



## Horticulture and Crop Science 255

### 5200 Advanced Horticultural Principles and Practices U G 3

This course will prepare students for transition from student to professional by advancing their mastery of edible and ornamental horticultural crop principles and practices as they are driven by the interaction of cultivar genetics, plant physiology, and environmental influences; and by exploring issues of economic and environmental sustainability and production efficiencies on a global scale.  
Prereq: 3200, or Grad standing.

### 5306 Sustainable Vegetable Production Practicum: Planning, Growing and Marketing U G 3

Provides students with an introduction to small-scale vegetable farm planning and management through consideration of plant growth and production, farm design, farm management and operations, and produce marketing.  
Prereq: 5450 (450), or permission of instructor. Not open to students with credit for 613.

### 5401 Sustainable Landscape Design II U G 4

Students synthesize the knowledge and skills learned in previous course work to achieve a command of the skills necessary to practice Sustainable Landscape Design. The development of a design package (construction documents, bidding, cost estimating, project management, marketing) is the focus. Professionalism and communication skills to work with clients and other professionals are stressed.  
Prereq: 2201, 2202, and 2401. Prereq or concur: 2340.01 or 2340.02.

### 5411 Domestication and Utilization of Agronomic Crops U G 3

To gain a fundamental understanding of the historical development and scientific principles underlying crop domestication and utilization, and how they impact current and future development and utilization of selected grain, oilseed, and fiber crops.  
Prereq: 2201, 2201E, 2202, or 2202E; and Biology 1101, 1113, or 1113H. Not open to students with credit for 411.

### 5412 Agroecology of Grasslands and Prairies U G 3

Growth characteristics, adaptation and utilization of grassland species for hay/silage, grazing, fuel and conservation.  
Prereq: 2201, 2201E, 2202, or 2202E; and Biology 1101, 1113, or 1113H; or Grad standing. Not open to students with credit for 412.

### 5422 Biology and Management of Weeds and Invasive Plants U G 3

A study of weeds and invasive plant biology and ecology, and methods of vegetation management. Enrollment in the Masters in Plant Health Management Program required for online offering only.  
Prereq: 3100, 3200, or 3470, and Biology 1101, 1113, or 1113H; or Grad standing. Not open to students with credit for 422 or 610.

### 5450 Vegetable Crop Production and Physiology U G 3

A physiological and ecological study of the principal vegetable crop species grown for processing and fresh market use. The impacts of integrated crop management and other production systems on vegetable yields and quality are also considered.  
Prereq: 2200 (200), 2201, 2202, 300 or MolGen 3300 (PlntBio 300); and Chem 1110 (101) or 1210 (121); and Biology 1101 (101), 1113 (113), or MolGen 1101 (PlntBio 101); or Grad standing. Not open to students with credit for 450 or 605.

### 5460 Fruit Crop Physiology and Production U G 3

Sustainable fruit crop production principles/practices and their physiological bases as affected by environmental and economic factors.  
Prereq: 2201 or 2202, and Biology 1101 or 1113; or Grad standing. Not open to students with credit for 460.

### 5521 Advanced Greenhouse Production U G 3

Advanced considerations in the manipulation of the greenhouse environment to control the growth and development of greenhouse crops.  
Prereq: 3521, Chem 1110 or 1210, and Biology 1101 or 1113; or Grad standing. Not open to students with credit for 521.

### 5601 Digital Portfolio Development U G 1

This course will provide an overview of digital portfolio development of prior learning and/or on-going learning. Portfolios may be used to assess and compare learning with contemporary job requirements. Students will learn to select, categorize, and document their achievements and accomplishments for review and assessment, relative to career readiness skills and co-curricular competencies.

### 5602 The Ecology of Agriculture U G 3

Examines the key ecological and evolutionary processes at work in agricultural systems and the ways those processes interact with human systems.  
Prereq: ENR 3000 (300.01), and 6 sem or hrs of HCS taken at the 3000-level or above; or Grad standing. Not open to students with credit for 602.

### 5621 Physiology of Cultivated Plants U G 3

A study of basic physiological processes in plants and how they impact crop production and productivity. Online section requires enrollment in the Masters of Plant Health Management Program.  
Prereq: 3310, and Biology 1113 or 1113H, and Chem 1110 or 1210; or Grad standing. Not open to students with credit for 621.

### 5622 Biochemical Processes in Cultivated Plants U G 3

A study of basic biochemical processes in crop plants and how they impact production, productivity, and quality.  
Prereq: Biology 1113 or 1113H, and Chem 2310 or 2510, and HCS 3310; or Grad standing.

### 5670 Golf Courses and the Environment U G 2

Principles and practices of golf course design for sustainability.  
Prereq: 2270 (270), or Grad standing. Not open to students with credit for 670.

### 5797.01 Artistry, History and Horticulture of European Gardens U G 3

Study of European gardens known for artistry, historical importance, and/or horticultural practices.  
Prereq: 5097.01, and 2.5 GPA or above. Repeatable to a maximum of 6 cr hrs.

### 5797.03 Agriculture and Agro-Ecosystems in Chile U G 3

An eight-day study tour of agriculture industries and agroecosystems in Chile.  
Prereq: GPA 2.5 or above. Concur: 5097.03.

### 5797.04 Professional Golf Management: History of Golf Outside the United States - Scotland U G 3

Provides undergraduate Professional Golf Management students the opportunity to learn about the rich history of golf in other countries and how the business and game of golf differs globally.  
Prereq: 5097.04, and 2.5 GPA or above. Not open to students with credit for 697.06.

### 5798 Agroecology Field Studies U G 3

This course is a 2-week field study of New Mexico to demonstrate the factors that shape agriculture in the semi-arid southwestern United States and be exposed to Navajo and Pueblo agriculture. Students will learn about the biophysical, climatic, economic, and cultural drivers of agriculture by reading and discussing literature and by visiting farms, research centers, processing plants, and more.  
Prereq: 2201 or 2201E, and permission of instructor.

### 5887 Introduction to Experimental Design U G 3

Introduction to experimental design, including selection and layout of plots, data analysis software, and data interpretation.  
Prereq: 2260 or Stat 1450, or equiv; or Grad standing.

### 5890 Turfgrass Seminar U G 1

This course uses case studies and discussion to provide students with an appreciation of the process involved in solving turfgrass problems at the managerial level. Using real-life scenarios, students will learn to recognize problems, analyze problems, identify issues that need to be addressed to correct the problems, formulate a set of strategies for solving the problems, and more.  
Prereq: 4570, or Jr, Sr, or Grad standing.

### 7001 Graduate Student Professional Development G 1

Introduction to the procedures, resources, and requirements needed to succeed as graduate Horticulture and Crop Science students and in subsequent career(s).  
This course is graded S/U.

### 7003.02 Agricultural Genomics: Principles and Applications G 2

Reviews the principles of most genetic technologies, new developments in the field and emphasizes their application in agriculture.  
Prereq: MolGen 4500 or Biochem 5613 (613), or permission of instructor. Concur: PlntPth 7003.01. Not open to students with credit for 7003 (703) or PlntPth 7003 (703).

### 7004 Genome Analytics G 4

The Genome Analytics course will facilitate a hands-on analytical and quantitative approach for graduate students to learn the basic pipelines for analysis of genomic sequences, focusing on incorporating these bioinformatics pipelines into their own research.

### 7193 Individual Studies G 1 - 3

Selected topics not included in regular HCS courses.  
Prereq: Permission of instructor. This course is graded S/U.

### 7194 Group Studies G 1 - 3

Special group studies in the area of horticulture and crop science.

### 7600 Metabolomics, Principles and Practice G 3

Introduces students to the principles and practice of metabolomics. Metabolomics is the study of the totality of small molecules existing within a system. We will focus here on the application of metabolomics to plant, food, nutrition and health-related research, although concepts are applicable to other disciplines.  
Prereq: Permission of instructor. Cross-listed in BMI, FdScTe, and HumnNtr.

### 7625 Plant Breeding and Biotechnology G 3

Introduction to the principles of plant breeding and biotechnology.  
Prereq: Undergraduate plant breeding or genetics course, or permission of instructor. Not open to students with credit for 625.

### 7761 Crop Secondary Products for Survival, Health and Wellbeing G 3

The synthesis, metabolism and agricultural, industrial, medicinal or aesthetic uses of crop secondary products affecting our daily lives.  
Prereq: Chem 1110 (102).

### 7806 Methods in Horticulture and Crop Science G 1 - 2

Instruction of a specific method used in the Horticulture and Crop Science professions. Repeatable to a maximum of 12 cr hrs or 6 completions.

### 7821 Environmental Physiology of Managed Plant Systems G 3

An advanced study of the interaction of cultivated plants with their environment.  
Prereq: 5621. Not open to students with credit for 821.

## 256 Horticulture and Crop Science

<b>7830</b>	<b>Phytochemicals in Human Health: Crops to the Clinic</b>	<b>G</b>	<b>3</b>
Covers the function and control of phytochemicals in plants, the function of phytochemicals in human health, delivery of phytochemicals through foods in the diet, strategies when designing studies examining foods for health, and policy and sustainability considerations. Prereq: Biochem 4511 (511) or 5613 (613), or equiv; or permission of instructor. Not open to students with credit for FdScTe 7810. Cross-listed in FdScTe, HumnNtr, BSGP, and PubHEpi.			
<b>7890</b>	<b>Seminar on HCS Topics</b>	<b>G</b>	<b>1</b>
Research seminar on varying topics in HCS. Repeatable to a maximum of 4 or hrs. This course is graded S/U.			
<b>7999</b>	<b>Graduate Research MS</b>	<b>G</b>	<b>1 - 18</b>
Research for thesis purposes for students pursuing a MS degree. MS thesis research in Horticulture and Crop Science may take place in laboratory, greenhouse, and/or field resources at The Ohio State University in Columbus, Wooster, and outlying branch farms. Prereq: MS Grad student standing in Horticulture and Crop Science, or permission of instructor. Repeatable. This course is graded S/U.			
<b>8825</b>	<b>Advanced Plant Breeding</b>	<b>G</b>	<b>3</b>
Advanced Plant Breeding examines theory and methods for improving plant varieties including genetics, breeding designs, tools and techniques, and marker-assisted selection. Sp Sem. Prereq: 7625 (625). Not open to students with credit for 825.			
<b>8830</b>	<b>Current Topics in Horticulture and Crop Science</b>	<b>G</b>	<b>1</b>
Readings from the current literature will be examined in detail for both technical and conceptual content. Repeatable to a maximum of 10 or hrs.			
<b>8887</b>	<b>Experimental Design</b>	<b>G</b>	<b>4</b>
Intended to develop student's ability to use appropriate and robust statistical techniques of experimental design in research, with an emphasis on approaches for biological and agricultural sciences. Prereq: 5887, PlntPth 5550, Stat 5301, MolGen 5650, or AnimSci 7000; or permission of instructor.			
<b>8998</b>	<b>Graduate Research Pre-Candidacy PhD</b>	<b>G</b>	<b>1 - 18</b>
Research for dissertation purposes only. Graduate research in Horticulture and Crop Science may take place in laboratory, greenhouse, and/or field resources at The Ohio State University in Columbus, Wooster, and outlying branch farms. Prereq: PhD Grad student standing in Horticulture and Crop Science, or permission of instructor. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Graduate Research Post-Candidacy PhD</b>	<b>G</b>	<b>1 - 18</b>
Research for dissertation purposes only. Dissertation research in Horticulture and Crop Science may take place in laboratory, greenhouse, and/or field resources at The Ohio State University in Columbus, Wooster, and outlying branch farms. Prereq: PhD Grad student standing in Horticulture and Crop Science and completion of candidacy exam, or permission of instructor. Repeatable. This course is graded S/U.			

## Human Development And Family Science

<b>2189</b>	<b>Introduction to Field Work</b>	<b>U</b>	<b>4</b>
Participation in community agency, learning roles and responsibilities, with increasing involvement in program development and evaluation. Department application must be filed one semester in advance. Prereq: 2210, and CPHR 2.5 or above, and permission of instructor. Not open to students with credit for 589.01 and 589.02.			
<b>2200</b>	<b>Family Development</b>	<b>U</b>	<b>3</b>
Dynamics of family interaction over the life cycle; emphasis on developmental, social, and cultural influences on the family experience. GE soc sci indivs and groups course.			
<b>2210</b>	<b>Helping Skills in Context</b>	<b>U</b>	<b>3</b>
The study of various strategies and techniques used to assess and work with individuals and families in the context of family service organizations. Prereq: 2200.			
<b>2239</b>	<b>Land-Grant Universities: Mission and Leadership</b>	<b>U</b>	<b>3</b>
This course provides students with the opportunity to learn about land-grant institutions and their place in the American higher education system, including evolving nature of the land-grant mission in 21st century America, as well as how higher education leaders are reconfiguring our nation's preeminent public institutions to meet the needs of the communities they were designed to serve. Cross-listed in ESHESA.			
<b>2350</b>	<b>Parenting</b>	<b>U</b>	<b>3</b>
Identification and examination of the theoretical approaches applicable to child rearing in families; emphasis on developing practical skills for working with parents and children. Prereq: Not open to students with credit for 665. GE soc sci indivs and groups course.			
<b>2367</b>	<b>American Family Issues</b>	<b>U</b>	<b>3</b>
Development of writing, presentation, and oral discussion skills while critically examining family and related community issues. Prereq: English 1110.01 (110.01), 1110.02 (110.02), or 1110.03 (110.03). Not open to students with credit for 367. GE writing and comm course: level 2.			

<b>2400</b>	<b>Life Span Human Development</b>	<b>U</b>	<b>3</b>
Survey of human development across the life span directed toward an applied understanding of the individual and forces that shape development. This course is available for EM credit. GE soc sci indivs and groups course.			
<b>2410</b>	<b>Child Development</b>	<b>U</b>	<b>3</b>
Study of the nature, nurture, and development of children from conception through the childhood years. GE soc sci indivs and groups course.			
<b>2420</b>	<b>Adolescence and Emerging Adult Development</b>	<b>U</b>	<b>3</b>
Current theory and research on individual development during the adolescent and emerging adulthood years.			
<b>2800</b>	<b>Promoting Early Language and Literacy in ECD&amp;E</b>	<b>U</b>	<b>3</b>
This ECDE course focuses on theories of language development, the sequence of speech and language development and differentiating between normal and atypical speech. Emphasis will also be placed on the teacher's role in facilitating communication and literacy skills, on planning and implementing appropriate language and literacy activities, and on selecting & using literature to enhance language.			
<b>2810</b>	<b>Developing Age Appropriate Curriculum for Infants and Toddlers</b>	<b>U</b>	<b>3</b>
This course is an overview of care giving for infants and toddlers in group settings. Developmentally appropriate programming for infants and toddlers is emphasized across developmental areas through routines, environment, and experiences with a focus on language and brain development. The role of staff and parent relationships is explored as is state rules for licensed child care centers.			
<b>2900</b>	<b>Methods in Human Ecology Research</b>	<b>U</b>	<b>3</b>
Introduction to the fundamental elements of human ecology research, using qualitative, quantitative, and historical perspectives.			
<b>3189.01</b>	<b>Field Work with Targeted Populations: Children</b>	<b>U</b>	<b>1 - 3</b>
Field Work for students who are interested in working with children. Prereq: 2410, and Jr or Sr standing; or permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>3189.02</b>	<b>Field Work with Targeted Populations: Adolescents</b>	<b>U</b>	<b>1 - 3</b>
Field Work for students who are interested in working with adolescents. Prereq: 2420, and Jr or Sr standing. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>3189.06</b>	<b>Field Work with Targeted Populations: Children with Disabilities</b>	<b>U</b>	<b>1 - 3</b>
Field work for students who are interested in working with children with disabilities; promoting independent and productive inclusion in home, school, and community environments. Prereq: 2410, and Jr or Sr standing. Not open to students with credit for 689.02. Repeatable to a maximum of 6 or hrs or 6 completions.			
<b>3193</b>	<b>Practicum in Human Development and Family Science Research</b>	<b>U</b>	<b>1 - 3</b>
Provides students with opportunity to work individually with faculty member on research project. Arr. Prereq: 2900 or equiv, and permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions. This course is graded S/U.			
<b>3200</b>	<b>Foundations of Family Science</b>	<b>U</b>	<b>3</b>
Examination of theories and perspectives of family development with an emphasis on the family systems perspective and application. Prereq: 2200.			
<b>3440</b>	<b>Human Sexuality</b>	<b>U</b>	<b>3</b>
Examination of the intellectual, physical, social, and emotional aspects of human sexuality. GE soc sci indivs and groups course.			
<b>3450</b>	<b>Managing and Supporting Behavior in Social Contexts</b>	<b>U</b>	<b>3</b>
Examines strategies to help promote adaptive behavior in home, school, and community contexts. Students will learn strategies for managing and preventing behavioral problems and develop an understanding of behavior management practices. Prereq: Soph, Jr, or Sr standing; or permission of instructor. Not open to students with credit for 461.			
<b>3620</b>	<b>Intervention and Prevention Practices: Development and Evaluation</b>	<b>U</b>	<b>3</b>
Students will identify practices that have empirical support and focus on development, integration, and evaluation of intervention and prevention practices applied to teaching important skills that improve functional outcomes in everyday contexts. Prereq: Soph, Jr, or Sr standing, or permission of instructor.			
<b>3800</b>	<b>Professional Development</b>	<b>U</b>	<b>1</b>
The professional: performance, role in society, position securement, involvement in organizations, and continuing development. Students are encouraged to take this course early in the major. Prereq: Not open to students with credit for 595.			

## Human Development And Family Science 257

<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Selected topics in human development and family science. Prereq: Jr or Sr standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>4370</b>	<b>Families and Stress</b>	<b>U</b>	<b>3</b>
Examination of normative and developmental stressors and crises that impact on the family; implications for practitioners drawn from conceptual frameworks and recent research. Prereq: 2200, or permission of instructor.			
<b>4640</b>	<b>Promoting Emotional Well-Being</b>	<b>U</b>	<b>3</b>
Explores the development of emotional competence and emotional problems in the family and larger socio-cultural context. Topics include foundations and antecedents of emotional development, understanding, regulation, and socialization. Prereq: Soph, Jr, or Sr standing; or permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in Human Development and Family Science</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research in areas of study related to the unit and the instructor's research agenda. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4998H</b>	<b>Undergraduate Honors Research in Human Development and Family Science</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate honors research in areas of study related to the unit and the instructor's research agenda. Prereq: Honors standing, Jr or Sr standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>5200</b>	<b>Foundations of Couple and Family Therapy</b>	<b>U G</b>	<b>3</b>
Overview and development of key theories of couple and family therapy. Prereq: Jr, Sr, or Grad standing, or by petition. Not open to students with credit for 650.			
<b>5340</b>	<b>Intimate Relationships</b>	<b>U G</b>	<b>3</b>
An examination of the individual, couple, and contextual factors that affect the development and maintenance of intimate relationships across the life course. Prereq: 2400, or Grad standing. Not open to students with credit for 670.03.			
<b>5350</b>	<b>Families with Adolescents</b>	<b>U G</b>	<b>3</b>
This is an upper level advanced course that is designed to provide students with an understanding of theory, research, and application efforts targeting families with adolescents. Prereq: 2200 or 2400, or equiv; or Grad standing.			
<b>5410</b>	<b>Infant-Toddler Development: Current Research and Controversies</b>	<b>U G</b>	<b>3</b>
Infant and toddler development during the first four years of life with special consideration of bases of support for provision of effective care. Prereq: 2410 or equiv, and Jr or Sr standing.			
<b>5430</b>	<b>Adult Development and Aging</b>	<b>U G</b>	<b>3</b>
Examination of change and continuity in human development from young adulthood to very old age using a psycho-social-biological perspective. Prereq: 2400 or 2420, or equiv, and Jr or Sr standing. Not open to students with credit for 670.01.			
<b>5440</b>	<b>Human Sexuality in Context</b>	<b>U G</b>	<b>3</b>
Examination of issues in human sexuality across the lifespan in the context of peoples' lived experiences within families, communities, and society, using film, texts, and narratives. Prereq: Jr standing or above, and 2400 or 2200 or equiv, or Sexuality Studies major or minor. Not open to students with credit for 370.			
<b>5890</b>	<b>Special Topics in Family Development</b>	<b>U G</b>	<b>3</b>
Review, interpretation, and evaluation of current literature and research in family development. Prereq: 2400 or 2200, or equiv, and Jr or Sr standing. Not open to students with credit for 695.02.			
<b>6780</b>	<b>Research Seminar</b>	<b>G</b>	<b>1</b>
Expose graduate students to a wide variety of research projects and findings in the field of Human Development and Family Science through weekly seminars presented by various faculty within and outside the department. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.			
<b>6782</b>	<b>Research Methods</b>	<b>G</b>	<b>3</b>
Overview of research methods and related conceptual issues relevant to study of human development and family science; creative approaches to research problems. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 760.			
<b>6890</b>	<b>Proseminar</b>	<b>G</b>	<b>1</b>
This 1-credit course exposes graduate students to the field of Human Development and Family Science and the current research, teaching and outreach interests of the existing HDFS faculty. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 701.03. This course is progress graded (S/U).			

<b>6892</b>	<b>Professional Development Seminar</b>	<b>G</b>	<b>1 - 3</b>
Aids students in professional development. Topics include: setting goals in graduate school, creating a CV, choosing research projects, submission of articles for publication, grant writing, career planning, navigating the job market. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is progress graded (S/U).			
<b>7189</b>	<b>Field Experience</b>	<b>G</b>	<b>1 - 3</b>
Supervised practice in couple and family assessment and intervention in an agency setting. Prereq: Grad standing, or permissions of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is progress graded (S/U).			
<b>7350</b>	<b>Adolescence and Emerging Adulthood</b>	<b>G</b>	<b>3</b>
Theoretical perspectives and empirical studies on adolescent development and emerging adulthood are covered. Focus will be on the reasons for this emerging life stage, recent research, contextual factors, and historical context/cohort differences. Prereq: Grad standing, or permission of instructor.			
<b>7500</b>	<b>Families, Systems, and Health</b>	<b>G</b>	<b>3</b>
A study of illness and its impact on individuals, couples, and family systems across the lifespan. Covered are common illnesses (especially chronic), family systems interventions, challenges, and collaborative models of care. A collaborative approach to interdisciplinary healthcare practice, intervention design, and research will be discussed, applied, and reinforced. Prereq: Grad standing, or permission of instructor.			
<b>7570</b>	<b>Obesity, A Multidisciplinary Foundation</b>	<b>G</b>	<b>2</b>
This course examines the context, causes, and consequences of obesity in the United States today by examining trends in obesity and a description of the scope of the problem. Next, by examining the physiological, psychological, sociological and economic factors that contribute to the obesity problem. Finally by describing adverse health outcomes associated with obesity. Cross-listed in PubHHBP.			
<b>7765</b>	<b>Advanced Child Development</b>	<b>G</b>	<b>3</b>
Growth and development of children with emphasis on maturation patterns and individual differences. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 765.			
<b>7770</b>	<b>Professional and Ethical Issues in Couple and Family Therapy</b>	<b>G</b>	<b>3</b>
A preclinical introduction to the central issues and resources in professional development, including personal growth, legal responsibilities, regulation, ethics, and special areas of practice. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 770.			
<b>7780</b>	<b>Research Methods in Couple and Family Therapy</b>	<b>G</b>	<b>3</b>
Explore major design, measurement and analysis strategies for conducting and understanding couple and family therapy research. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 881.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 12</b>
Research for masters thesis. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is progress graded (S/U).			
<b>8081</b>	<b>Introductory Seminar: Applied Developmental Science in Education</b>	<b>G</b>	<b>3</b>
An introductory professional seminar for doctoral students seeking the Interdisciplinary PhD Specialization in Applied Developmental Science in Education (ADS-E). Cross-listed in EduTL and EducSt.			
<b>8082</b>	<b>Capstone Seminar: Applied Developmental Science in Education</b>	<b>G</b>	<b>3</b>
A capstone professional seminar for doctoral students enrolled in the Interdisciplinary PhD Specialization in Applied Developmental Science in Education (ADS-E). Prereq: 8081 or EduTL 8081 or EducSt 8081. Cross-listed in EduTL and EducSt.			
<b>8189</b>	<b>Practicum in Couple and Family Therapy</b>	<b>G</b>	<b>1 - 3</b>
Supervised practice in couple and family assessment and intervention in the department's couple and family therapy clinic. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 27 cr hrs or 27 completions. This course is progress graded (S/U).			
<b>8189.01</b>	<b>Practicum in Research</b>	<b>G</b>	<b>1 - 3</b>
Participation in the research process under the supervision of a faculty member. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 851. This course is progress graded (S/U).			
<b>8189.02</b>	<b>Practicum in Teaching</b>	<b>G</b>	<b>1 - 3</b>
Supervised college teaching experience for department graduate students. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is progress graded (S/U).			
<b>8189.11</b>	<b>Pre Practicum in Couple and Family Therapy</b>	<b>G</b>	<b>3</b>
This course is an introduction to the practice of couple and family therapy for masters and Ph.D. students in the Couple and Family Therapy specialization. It will cover such topics as assessment and diagnosis, psychopharmacology, in session interventions, and ethical and legal issues that are commonly observed in couple and family therapy.			

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**8189.12 Practicum in Couple and Family Therapy, Masters** G 1 - 9

This course is a practicum course for masters students assigned to see clients in the on-campus Couple and Family Therapy Clinic and/or at placements in the community. Prereq: 8189.11. Repeatable to a maximum of 9 or hrs or 3 completions.

**8189.13 Practicum in Couple and Family Therapy, Masters, Placement** G 1 - 6

The practicum course is designed to train Couple and Family Therapy Students in systemic assessment, diagnosis, and treatment planning in order to provide couple and family therapy to a variety of client presentations. Students in the masters program must obtain 500 hours of client contact, with 250 of those hours in relational therapies. Students are required to be supervised during those hours.

Prereq: 8189.11 and 8189.12. Repeatable to a maximum of 6 or hrs or 2 completions.

**8189.14 Practicum in Couple and Family Therapy, Doctoral** G 1 - 3

This is a practicum course for doctoral students who are assigned to see clients at the on-campus Couple and Family Therapy Clinic and/or provide supervision to trainees at the clinic. This course is graded S/U.

**8190 The PhD Job Market** G 2

This 2-credit course examines issues related to the job market for Ph.D.s. Both academic and nonacademic jobs are discussed. Application, interviewing, and negotiating techniques are described.

Prereq: Doctoral standing. This course is graded S/U.

**8193 Independent Studies for Doctoral Students** G 1 - 3

Problems in various phases of human development chosen for individual study.

Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is progress graded (S/U).

**8403 Individuation** G 3

Designed as an advanced adolescent development course. The major focus is on the individuation process discussed from several perspectives.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 840.03.

**8404 Adolescence: Risk in Context** G 3

Examines the ways that social relationships and contexts (family, peers, community, etc) shape development, specifically risk and problem behavior during the adolescent period.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 840.04.

**8725 Quantitative Methods Capstone Course** G 3

This seminar is the capstone experience of the GIS in Quantitative Research Methods. Much of the work will be student-identified and student-led. The course will consist of work in: identification of new or emerging topics or software in quantitative methods: readings and discussion on advanced topics: student-led demonstrations or presentations; and GISQRM paper updates and progress reports. Students entering this course must have completed or nearly completed their GISQRM coursework. See the GISQRM website for details. Cross-listed in ESQREM and VetPrev.

**8820 Theoretical Perspectives on the Family** G 3

Provides an overview of theoretical perspectives used to study families and family change topics in HDFS from the perspective of psychology, sociology, economics, demography, anthropology, and others.

Prereq: Grad standing, or permission of instructor.

**8824 General Systems Theory** G 3

Doctoral level course designed to provide students with an introduction to foundational ideas concerning general systems theory as applied to children, family, schools, and communities.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 824.

**8825 Theories of Human Development** G 3

Examination of foundational theories of human development with an emphasis on evaluating, comparing and contrasting the major theories.

Prereq: Doct standing, or permission of instructor. Not open to students with credit for 825.

**8860 Seminar in Couple and Family Therapy** G 3

Seminar in Couple and Family Therapy. Topics to be announced.

Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 or hrs.

**8862 Seminar in Human Development and Family Science** G 3

Seminar in Human Development and Family Science, topics to be announced.

Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 or hrs.

**8870 Family Systems Assessment** G 3

A survey of issues and techniques used in assessment of families for purposes of research and practice, including issues and design for family therapy research.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 870.

**8874 Family Therapy Theory I** G 3

An emphasis on the theoretical orientation of the structural, strategic, MRI, and Milan approaches to family therapy.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 874.

**8875 Family Therapy Theory II** G 3

An emphasis on the theoretical orientation of the intergenerational, behavioral, experimental and solution-focused approaches to family therapy.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 875.

**8876 Marital Therapy Theory** G 3

An emphasis on theoretical approaches, intervention techniques, and basic issues or problems of application for couple therapy.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 876.

**8878 Supervision of Couple and Family Therapy** G 3

Preparation of Couple and Family Therapy doctoral students to provide supervision of therapy.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 878.

**8999 Dissertation Research** G 1 - 12

Research for thesis or dissertation purposes only.

Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.

## Human Nutrition

**2193 Individual Studies** U 1 - 6

Problems in various phases of human nutrition chosen for Intermediate level undergraduate individual study.

Prereq: Written permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions. This course is graded S/U.

**2194 Group Studies** U 1 - 3

Selected topics for intermediate undergraduate study in human nutrition.

Repeatable to a maximum of 6 or hrs or 6 completions.

**2210 Science of Human Nutrition** U 3

Basic principles of biological science, emphasizing the interaction between nutrients and physiological (including cellular) processes.

Prereq: Not open to students with credit for 210. GE nat sci bio course.

**2295 Careers in Nutrition** U 1

Exploration of careers in nutrition/dietetics through self-assessment, employer presentations; professional readings; internship and job search strategies.

Prereq: Not open to students with credit for 295.

**2310 Fundamentals of Nutrition** U 3

Nutrient and energy needs of the human biological system throughout the life cycle including energy balance with consideration of socio-psychological factors.

Prereq: Biology 1113 (113), or 1101 (101), or equiv; and Chem 1210, or 1610, or 1910H; and Chem 1220, or 1620, or 1920H, or 1250. Not open to students with credit for 310. This course is available for EM credit.

**2314 Fundamentals of Food** U 3

Scientific principles of food components, of major food groups and their interactions, with reference to nutritional properties, food preparation, food chemistry, optimum quality, microbiological safety and preservation of nutrients.

Prereq: 2210 (210) or 2310 (310), and premajor, major, or minor in the following: Human Nutrition, Animal Science, Medical Dietetics, or Family and Consumer Science Education. Not open to students with credit for 314.

**2450 Foodservice Sanitation and Safety** U 1

Organization of a facility to ensure safe and sanitary foodservice program. Includes National Restaurant Association's ServSafe Sanitation Certification program and Ohio Department of Health Certification in Food Protection.

Prereq: Not open to students with credit for 450.

**3313 Food in Different Cultures** U 2

Food practices of selected peoples of the world with consideration of the existing social, cultural, and economic conditions. Class content through lecture, discussion, and guest speakers.

Prereq: 2210 or 2310; and FCSEd major, Human Nutrition major, Human Nutrition pre-major, or Human Nutrition minor.

**3415 Global Nutrition Issues** U 2

Topics in global nutrition with critical appraisal of research basis and alternative viewpoints.

Current issues include research and evaluation, major global nutrition issues (obesity, food insecurity, malnutrition, bioengineering, vegetarianism).

Prereq: 2310; or AnimSci 3130; or HumnNtr 2210, and major in FCSEd; or HumnNtr 2210, and minor in Human Nutrition.

**3506 Nutrition Across the Life Span** U 3

Nutrition issues during major life stages from pre-pregnancy through the dying elderly.

Prereq: 2210, 2310, or AnimSci 3130.

**3704 Public Health Nutrition** U 2

Review of evidence base for public health nutrition including examination of food assistance and education programs; Description of public health nutrition efforts; Investigation of practices aimed at empowering the public to choose healthy foods.

Prereq: 2210 or 2310.

**3780H Research Methods in Nutrition** U 1

Development of hypotheses and choosing appropriate methods to test them. Work with advisor to write Honors research proposal.

Prereq: Honors standing.

**3998 Undergraduate Research in Human Nutrition U ½ - 6**

Undergraduate research in areas of study related to human nutrition and the instructor's research agenda.

Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 12 completions. This course is graded S/U.

**3998H Undergraduate Honors Research in Human Nutrition U ½ - 6**

Undergraduate honors research in areas of study related to human nutrition and the instructor's research agenda.

Prereq: Honors standing and written permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4189 Professional Experience in Human Nutrition U 1 - 3**

Supervised pre-planned employment experience with approved biomedical or medical professional.

Prereq: Soph standing and HumNtr major. This course is graded S/U.

**4193 Individual Studies U 1 - 6**

Problems in various phases of human nutrition chosen for advanced undergraduate individual study.

Prereq: Permission of instructor. Not open to students with 10 qtr cr hrs for HumNtr 593. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4194 Group Studies U 1 - 3**

Selected topics for advanced undergraduate study in human nutrition.

Repeatable to a maximum of 6 cr hrs or 6 completions.

**4504 Nutrition Education and Behavior Change U 3**

Contemporary theories and models of health education and behavior change related to individuals, groups and communities and applied to field of nutrition. Review of effective communication techniques with individuals and groups.

Prereq: 2310, and HumNtr major or minor, or MedDiet major, or HPNES major.

**4596 Dietetics Seminar U 1**

Advanced professional development issues in dietetics: Leadership, marketing, research, continuing education, licensure, and preparation for dietetic internship/graduate education.

Prereq: 2295, and Sr standing in full Dietetics major.

**4609 Macronutrients U 3**

Application of biochemistry and physiology to the regulation of carbohydrate, lipid, and protein during fed, fasted and exercise states; nutrient digestion, absorption, metabolism, excretion, requirements, and interactions.

Prereq: C- or above in 2310 (310) or AnimSci 3130 (330); and Biochem 2210 (211 and 212) and Chem 231 (2310), or Biochem 4511 (511), or MolBic 3311 (311) and 3312 (312); and EEOB 2520 (232), or Physio 3101 (311) and 3102 (312), or 3200.

**4610 Micronutrients and Phytochemicals U 3**

Application of biochemistry and physiology to understanding micronutrients, including structure, digestion, absorption, metabolism, excretion, requirements, sources, and interactions of vitamins, phytochemicals, water, electrolytes, and minerals.

Prereq: 4609 (610) and C- or higher in 2310; and HumNtr, MedDiet, AnimSci, or HNPES major.

**5611 Medical Nutrition Therapy I U G 3**

The role of medical nutrition therapy in the treatment of established chronic diseases with emphasis on the biochemical and physiological rationale for dietary modifications.

Prereq: 4609, and Human Nutrition or Medical Dietetics major; or Grad standing. Prereq or concur: MedDiet 4900.

**5612 Medical Nutrition Therapy II U G 3**

The role of medical nutrition therapy in the treatment of established disease with emphasis on the biochemical and physiological rationale for dietary modifications.

Prereq: 5611 (611), and Human Nutrition or Medical Dietetics major; or Grad standing. Not open to students with credit for 612.

**5622 Medical Nutrition Therapy I Lab U G 1**

Laboratory and practical application of the nutrition care process through assessment, management and treatment of various disease states.

Concur: 5611, and enrollment in DPD.

**5705 Nutrition and Physical Performance U G 2**

Integration of nutrition, exercise physiology, and biochemistry. Use of nutrients as fuel, interaction between nutrients and exercise performance, assessment of energy expenditure and nutritional status, interactions among diet, exercise and health.

Prereq: 4609 (610). Not open to students with credit for 705.

**6010 Motivational Interviewing for Behavioral Change G 1**

Students will gain knowledge and skills in promoting nutrition-related behavioral change. The spirit behind motivational interviewing and strategies for promoting change will be presented.

Prereq: Grad standing, or permission of instructor.

**7193 Individual Studies G 1 - 6**

Problems in various phases of human nutrition chosen for intermediate level graduate individual study.

Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**7194 Group Studies G 1 - 3**

Selected topics for intermediate graduate study in human nutrition.

Prereq: Open to students who meet department's stated prerequisites. Repeatable to a maximum of 6 cr hrs or 6 completions.

**7600 Metabolomics, Principles and Practice G 3**

This course aims to introduce students to the principles and practices of metabolomics with a focus on the application of metabolomics to plant, food, nutrition and health-related research.

Prereq: Permission of instructor. This course is available for EM credit. Cross-listed in BMI, FdScTe, and HCS.

**7761 Macronutrient Metabolism G 4**

In-depth treatment of digestion, absorption, transport, and utilization of dietary carbohydrates and fat for energy production and fat deposition in humans and other higher animals.

Prereq: 2310 (310) or AnimSci 3130 (330), and Biochem 4511 (511). Not open to students with credit for 761 and 762, AnimSci 761 and 762, or FdScTe 761 and 762. Cross-listed in AnimSci.

**7762 Vitamin and Mineral Metabolism G 4**

Biochemical functions, absorptions, transport, utilization, interrelationships and nutritional requirements of selective vitamins and minerals in higher vertebrates and humans.

Prereq: Credit in Biochem and Physiol. Not open to students with credit for AnimSci, FdScTe, or HumNtr 763. Cross-listed in AnimSci.

**7789 Nutrition Research Ethics G 1**

Exploring critical aspects in conducting research, including ethical consideration, authorship, conflicts of interests, and intellectual property rights.

Prereq: Grad standing. Not open to students with credit for AnimSci 7789. Cross-listed in AnimSci.

**7790 Animal Models and Mechanistic Research Design G 1**

The course will provide fundamental principles in establishing effective research hypothesis, through student evaluation of primary literature and student interactions.

Prereq: 7789 or AnimSci 7789. Not open to student with credit for AnimSci 7790. Cross-listed in AnimSci.

**7791 Community and Clinical Nutrition Research Design G 1**

The course will provide fundamental principles in establishing effective research hypotheses and designs to answer specific research questions. A focus on research designs, specifically randomized controlled trials, commonly used in community-based studies and clinical trials will be employed.

Prereq: 7789 or AnimSci 7789.

**7804 Advanced Community and International Nutrition G 3**

Current issues in community and international nutrition.

Prereq: 3704 (704), or permission of instructor. Not open to students with credit for 804.

**7806 Advanced Nutrition Education G 3**

Discussion of principles of nutrition education and behavior change target audience will be discussed. Course will focus on concepts and methods from related disciplines such as behavioral medicine, psychology, sociology, and education.

Prereq: Not open to students with credit for 806.

**7830 Phytochemicals in Human Health: Crops to the Clinic G 3**

Covers the function and control of phytochemicals in plants, the function of phytochemicals in human health, delivery of phytochemicals through foods in the diet, strategies when designing studies examining foods for health, and policy and sustainability considerations.

Prereq: Biochem 4511 or 5613, or equiv; or permission of instructor. Not open to students with credit for FdScTe 7810. Cross-listed in FdScTe, HCS, BSGP, and PubHEpi.

**7899 Oral Research Communication G 1**

Critical analysis of the scientific literature and demonstration of effective oral presentation skills tailored to the target audience with use of information technologies as needed.

Prereq: Grad standing. Cross-listed in AnimSci.

**7999 Research: Thesis G ½ - 6**

Research for masters thesis.

Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**8193 Individual Studies G 1 - 6**

Problems in various phases of human nutrition chosen for advanced level graduate individual study.

Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**8194 Group Studies G 1 - 3**

Selected topics for advanced graduate study in human nutrition.

Repeatable to a maximum of 6 cr hrs or 6 completions.

**8801 Macronutrients- Lipids and Energy Balance G 3**

Discussion of lipids as storage molecules used for energy and to modulate metabolism and influence energy balance conditions such as obesity, cachexia, weight loss and weight gain.

Prereq: 7761 (761), AnimSci 7761 (761), or FdScTe 761. Not open to students with credit for 830.01, AnimSci 830.01, or FdScTe 830.01. Cross-listed in AnimSci.

## 260 Human Nutrition

<b>8802</b>	<b>Advanced Micronutrient Metabolism</b>	<b>G</b>	<b>3</b>
Comparative study of the regulation of micronutrient status and its influence on physiological and molecular events including nuclear receptor activity and transcription. Prereq: 7761 (761), AnimSci 7761 (761), or FdScTe 761. Not open to students with credit for 830.02, or AnimSci 830.02, or FdScTe 830.02. Cross-listed in AnimSci.			
<b>8833</b>	<b>Diet, Nutrition and Cancer</b>	<b>G</b>	<b>3</b>
Epidemiological, clinical and basic perspective of how diet and nutrition practices. Prereq: 7761 (761), AnimSci 7761 (761), or FdScTe 761. Not open to students with credit for 830.12, AnimSci 830.12, or FdScTe 830.12. Cross-listed in AnimSci.			
<b>8834</b>	<b>Comprehensive Approach to Food Safety</b>	<b>G</b>	<b>2</b>
A comprehensive overview of food safety challenges and solutions as experienced through the food chain from farm to consumers. Demonstration of food safety system from cellular aspects though public policy. Prereq: Micbio 509, or equiv. Not open to students with credit for 830.10, AnimSci 830.10, or FdScTe 830.10. Cross-listed in AnimSci.			
<b>8835</b>	<b>Grantsmanship</b>	<b>G</b>	<b>1</b>
Capstone course for the OSUN PhD program will train students on grantsmanship skills. Prereq: Grad standing. Cross-listed in AnimSci.			
<b>8836</b>	<b>Advanced Nutritional Genomics</b>	<b>G</b>	<b>3</b>
The primary goal of the course is to stimulate critical thinking and discussion among graduate students about current research findings in the areas of genomics, proteomics and metabolomics as they apply to studies in the nutritional sciences. Prereq: 7761 or AnimSci or FdScTe 7761, and HumnNtr or AnimSci 7762. Cross-listed in AnimSci.			
<b>8888</b>	<b>OSUN Research Seminar</b>	<b>G</b>	<b>1</b>
Recent advances in nutrition science are presented by locally, nationally and internationally recognized scientists. Prereq: Grad standing. Repeatable to a maximum of 5 cr hrs. This course is graded S/U. Cross-listed in AnimSci.			
<b>8998</b>	<b>Graduate Research</b>	<b>G</b>	<b>1 - 15</b>
Graduate research in areas of study related to human nutrition and the instructor's research agenda. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Research: Dissertation</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

## Hungarian

<b>1101</b>	<b>Elementary Hungarian I</b>	<b>U</b>	<b>4</b>
Introduction to Hungarian (Magyar); development of speaking, listening, reading, & writing skills in cultural context. Not open to native speakers through regular course enrollment or EM credit, or to students with 2+ years of high school study. Prereq: Not open to students with credit for Hungarian 101. This course is available for EM credit. GE for lang course. FL Admis Cond course.			

## Industrial and Systems Engineering

<b>2040.01</b>	<b>Engineering Economics In-Person</b>	<b>U</b>	<b>2</b>
Economic analysis of engineering project alternatives. Cash flow modeling; time value of money; techniques for comparing project alternatives and making solid business recommendations; influence of financial accounting and cost accounting on cash flow models. Course uses MS Excel as primary business tool for modeling. Prereq: Soph standing in Engineering.			
<b>2194</b>	<b>Group Studies in Integrated Systems Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to students enrolled in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>2400</b>	<b>Design of Work: Methods and Measurement</b>	<b>U</b>	<b>2</b>
Introduces students to tools and techniques used in work methods design and productivity improvement, including operation analysis, motion study, value engineering, predetermined time systems, time study, line balancing. Prereq: Soph standing, and enrollment in Industrial and Systems Engineering major or Engineering Physics major. Additional prereq for students enrolled in ISE major: a grade of C or above in English 1110, Math 2568, Stat 3470, and CSE 1222 or 1223 or 1224.			
<b>2500</b>	<b>Introduction to Manufacturing Engineering</b>	<b>U</b>	<b>3</b>
Fundamentals of common manufacturing processes, materials and tooling; relationship of product design to required processing sequences and steps, attributes of manufacturing systems. Prereq: Not open to students with credit for 350 or IndEng 311.			
<b>3194</b>	<b>Group Studies in Integrated Systems Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to students enrolled in Integrated Systems Engineering and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			

<b>3200</b>	<b>Linear and Integer Programming</b>	<b>U</b>	<b>3</b>
Introduction to formulation, solution and analysis of continuous and discrete linear models to optimize the design of production and service systems and other engineering applications. Prereq: Math 2568 or 2174, and CSE 1222 or 1223 or Engr 1281.01H or 1281.02H, and enrollment in ISE or Engineering Physics major. Additional prereq for students enrolled in ISE major: ISE 2400 and CSE 2112.			
<b>3210</b>	<b>Nonlinear and Dynamic Optimization</b>	<b>U</b>	<b>3</b>
Introduction to nonlinear, dynamic, and network optimization models and solution techniques. Prereq: 3200 and MechEng 2850, and enrollment in ISE or Engineering Physics major.			
<b>3230</b>	<b>Systems Modeling and Optimization for Analytics</b>	<b>U</b>	<b>3</b>
Introduction to formulation, solution and analysis of continuous and discrete linear and nonlinear models to optimize systems using data-driven techniques. Prereq: Math 1152, 2568, and CSE 2231. Not open to ISE majors or to students with credit for 3200 or 3210.			
<b>3400</b>	<b>Production Planning and Facilities Design</b>	<b>U</b>	<b>4</b>
Introduction to production systems control: deterministic and stochastic, static and dynamic, single-stage and multi-stage inventory control, MRP systems, just-in-time, scheduling. Facility and machine location models, storage models (warehouse, ASRS), simple layout models, systematic layout planning with applications in manufacturing, health care, service and logistics. Prereq: 3200, Stat 3470, and enrollment in ISE or Engineering Physics major. Additional prereq for students enrolled in ISE major: ISE 3600.			
<b>3500</b>	<b>Process Engineering for Machining Operations</b>	<b>U</b>	<b>3</b>
Introduction to the machines, tooling, set-ups, processing sequences, processing times, metrology, and safety issues for traditional and selected non-traditional metal cutting operations. Prereq: 2500, and enrollment in ISE major.			
<b>3600</b>	<b>Workplace Ergonomics: Analysis and Design of Physical Work Systems</b>	<b>U</b>	<b>3</b>
Explores physiological and biomechanical principles used to analyze and design work systems (tasks, tools, equipment) so people can perform their jobs more effectively and safely. Prereq: 2040 and Stat 3470, and enrollment in ISE or Engineering Physics major; CPHR 3.0 or above for students not enrolled in ISE or Engineering Physics major. Prereq or concur: ISE 2400 and MechEng 2040 for students enrolled in ISE major.			
<b>3700</b>	<b>Cognitive Engineering Systems</b>	<b>U</b>	<b>3</b>
Human-centered design of cognitive tools and work systems. Human-computer interaction; decision making; human error; computer-supported distributed work; design of decision support systems. Prereq: Jr standing, and admission to the ISE or Eng. Phys. major. Not open to students with credit for 670, IndEng 570, or 670.			
<b>3800</b>	<b>Engineering Project Management</b>	<b>U</b>	<b>3</b>
Project management for engineers, including project life cycle, planning, optimization models, management of change and scheduling and budgeting. Prereq: Jr standing, and major in ISE or Engineering Physics; or permission of ISE Academic Advisor. Not open to students with credit for 681.			
<b>4100</b>	<b>Stochastic Modeling and Simulation</b>	<b>U</b>	<b>4</b>
Methods for stochastic process and discrete event simulation modeling and system design and decision-making using simulation tools. Prereq: Stat 3470 or equiv, and enrollment in Industrial & Systems Engineering major; or permission of instructor. Not open to students with credit for 501.			
<b>4120</b>	<b>Quality and Reliability Engineering</b>	<b>U</b>	<b>3</b>
Techniques associated with the Total Quality Management and Lean Six Sigma as well as the foundations of reliability engineering. Prereq: Stat 3470, and enrollment in ISE major or EngPhys major. Not open to students with credit for 510 and 610, or IndEng 509 or 610.			
<b>4193</b>	<b>Individual Studies in Integrated Systems Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to undergraduate students in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies in Integrated Systems Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics of general interest to undergraduate students in Integrated Systems Engineering and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>4500</b>	<b>Manufacturing Process Engineering</b>	<b>U</b>	<b>3</b>
A thorough quantitative understanding of contemporary manufacturing processes; exposure to laboratory exercises and computer simulations in major manufacturing processes; design for manufacturing and assembly. Prereq: Option 1: MechEng 3670. Prereq or concur: MechEng 3503, Or Option 2: MechEng 2020 or 2040, and WeldEng 4201 or MechEng 3500 or MatScEn 3151; or permission of instructor.			

## Industrial and Systems Engineering 261

<b>4900</b>	<b>Capstone Design</b>	<b>U</b>	<b>4</b>
In-depth systems design project for industrial engineering. Exploration and selection of design alternatives; justification, recommendation, and presentation of problems and potential solutions. Prereq: 2040, 2400, 2500, 3200, 3210, 3400, 3600, 3700, 3800, 4100, and 4120, and enrollment in ISE major.			
<b>4998</b>	<b>Undergraduate Research in Integrated Systems Engineering</b>	<b>U</b>	<b>1 - 4</b>
Opportunity for undergraduates to conduct research in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research in Integrated Systems Engineering</b>	<b>U</b>	<b>1 - 4</b>
Opportunity for undergraduate honors students to conduct research in Integrated Systems Engineering. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research for Thesis</b>	<b>U</b>	<b>1 - 4</b>
Opportunity for undergraduates to conduct research in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.			
<b>4999H</b>	<b>Honors Undergraduate Research for Thesis</b>	<b>U</b>	<b>1 - 4</b>
Opportunity for Honors undergraduates to conduct research in Integrated Systems Engineering. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions.			
<b>5043</b>	<b>Power Systems - Analysis and Operation</b>	<b>U G</b>	<b>3</b>
Power systems analysis and operations, including steady-state analysis, state estimation, and economic operation. Prereq: 3040, and ECE major; or Sr standing and ISE major; and Math 2568; or Grad standing in engineering or biological sciences or math and physical sciences. Cross-listed in ECE.			
<b>5110</b>	<b>Design of Engineering Experiments</b>	<b>U G</b>	<b>3</b>
Plan and analyze experiments relevant to system design. Also, students will learn regression and alternative approaches for on-hand data analysis. Prereq: 4210; or Stat 3470 or equiv, and Grad standing. Not open to students with credit for 610 or IndEng 610.			
<b>5193</b>	<b>Individual Studies in Integrated Systems Engineering</b>	<b>U G</b>	<b>1 - 4</b>
Special topics of general interest to graduate students in Integrated Systems Engineering. Prereq: Enrollment in department BS/MS program, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies in Integrated Systems Engineering</b>	<b>U G</b>	<b>1 - 4</b>
Special topics of general interest to undergraduate and graduate students in Integrated Systems Engineering and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>5200</b>	<b>Linear Optimization</b>	<b>U G</b>	<b>3</b>
Introduction to the linear optimization and applications. Topics include model formulation, solution methods, polyhedral and duality theory, sensitivity analysis, and software usage. Prereq: Math 2174, 2415, 2568, or 4568, and permission of instructor; or Grad standing. Not open to students with credit for 720 or IndEng 702.			
<b>5201</b>	<b>Theory of Linear Optimization</b>	<b>U G</b>	<b>3</b>
Introduction to linear optimization with an emphasis on theory. Topics include model formulation, solution methods, polyhedral and duality theory, sensitivity analysis, and software. Prereq: Math 2174, 2415, 2568, or 4568, and permission of instructor; or Grad standing. Not open to students with credit for 5200 (720).			
<b>5220</b>	<b>Complementarity Theory &amp; Applications</b>	<b>U G</b>	<b>3</b>
Describes complementarity models and their solution techniques. It includes optimality conditions, equilibria, mathematical programs with equilibrium constraints and equilibrium problems with equilibrium constraints. Prereq: 3200, or permission of instructor.			
<b>5225</b>	<b>Electricity Market Analytics</b>	<b>U G</b>	<b>3</b>
This course provides an analysis of decision-making tools for electricity markets, addressing the perspectives of the market operator, producers, retailers, and consumers. Prereq: 3200, or permission of instructor.			
<b>5230</b>	<b>Decomposition Techniques in Mathematical Programming</b>	<b>U G</b>	<b>3</b>
This course provides a description of decomposition techniques to solve large-scale optimization problems with decomposable structure. Partitioning techniques considered include Dantzig-Wolfe, Benders and Lagrangian decompositions. The considered techniques are illustrated using examples and case studies from the energy sector. Prereq: 3200 and 3210, or Grad standing.			

<b>5350</b>	<b>Probabilistic Models and Methods in Operations Research</b>	<b>U G</b>	<b>3</b>
Introduces probabilistic modeling techniques in operations research like Markov Chains, Poisson Processes, and Markov Decision Processes. Modeling, theory, and applications are discussed. Prereq: 3200 and Stat 3470; or permission of instructor. Not open to students with credit for 7300.			
<b>5410</b>	<b>Quantitative Models in Production and Distribution Logistics</b>	<b>U G</b>	<b>3</b>
Introduction to quantitative models in supply chain management and logistics including: location analysis, inventory management, vehicle routing, coordination, risk pooling, reverse logistics. Prereq: 3210 or 3300. Not open to students with credit for 742.			
<b>5430</b>	<b>Warehouse and Facility Design</b>	<b>U G</b>	<b>3</b>
Broad exposure to facility planning and design, and distribution center layout and operations. Topics include current material handling equipment technology, and warehouse systems and operations. Prereq: Calculus, Linear Algebra, and Linear Programming. Not open to students with credit for 742.			
<b>5501</b>	<b>Fundamentals of Solid State Processing</b>	<b>U G</b>	<b>3</b>
Application of basic principles of heat transfer, tribology, and elastic/plastic deformation for metallic solids to manufacturing processes. Prereq: MechEng 2010, 2020, and 2040, or equiv, and Sr or Grad standing in Engineering.			
<b>5503</b>	<b>Manufacturing Processes and Simulation</b>	<b>U G</b>	<b>3</b>
An introduction to theory and simulation of different manufacturing processes. Learn to apply numerical methods to manufacturing processes such as machining, hot embossing, and injection molding. Prereq: Jr or Grad standing in Engineering, or permission of instructor.			
<b>5520</b>	<b>Industrial Automation</b>	<b>U G</b>	<b>1½</b>
Industrial Automation teaches the design, application, and computer logic and control of various mechanical, pneumatic, electrical, and electronic sensors and actuator devices for industrial systems. Prereq: 2500, or Grad standing in Engineering.			
<b>5525</b>	<b>Industrial Robotics</b>	<b>U G</b>	<b>1½</b>
Operating principles, selection, use of proximity and optical sensors; switches, relays, actuators; electric motors and controls; electro-pneumatic devices; integration of these for automated industrial systems. Prereq: 2500, or Grad standing in Engineering.			
<b>5540</b>	<b>Polymer Processing Fundamentals</b>	<b>U G</b>	<b>3</b>
Applies fundamentals of transport phenomena and polymer constitutive equations to the analysis of manufacturing of plastic components. Prereq: MechEng 2020, 2040, or equiv. Prereq or concur: MatScEn 2251, MechEng 4510, or equiv.			
<b>5550</b>	<b>Principles of Precision Engineering</b>	<b>U G</b>	<b>3</b>
Principles of precision engineering with focus on design and performance of precision machinery, machine tool metrology and precision manufacturing processes. Prereq: MechEng 2010 and MechEng 2020; or MechEng 2040. Not open to students with credit for 752.01.			
<b>5555</b>	<b>Manufacturing Processes and Machine Tools</b>	<b>U G</b>	<b>3</b>
Focuses on machining processes: cutting, grinding and milling. It includes descriptive and analytical treatment of machining processes, equipment, computer control and integrated systems. Prereq: Jr, Sr, or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 651.01 or IndEng 611.			
<b>5600</b>	<b>Principles of Occupational Biomechanics and Ergonomics</b>	<b>U G</b>	<b>3</b>
Introduction to anatomical, physiological, and biomechanical bases of physical ergonomics; workplace assessment techniques; biomechanical modeling; bioinstrumentation; preparation for advanced topics and research. Prereq: Grad standing. Not open to students with credit for 660.			
<b>5610</b>	<b>Ergonomics in the Product Design Process</b>	<b>U G</b>	<b>3</b>
Provides students with an understanding of where and how ergonomic principles are incorporated into the design and evaluation of consumer products. Prereq: 3600 and 3700 or equiv. Not open to students with credit for 769.			
<b>5620</b>	<b>Risk Assessment Tools for Occupational Musculoskeletal Disorders</b>	<b>U G</b>	<b>3</b>
Provides students with an understanding and working knowledge of tools used to assess risk of occupationally related musculoskeletal disorders. Prereq: 3600 or equiv. Not open to students with credit for 761.01 or 761.02.			

## 262 Industrial and Systems Engineering

### 5640 Occupational Safety: Analysis and Design of Work Environments U G 3

Introduction to workplace hazards and controls for engineers and others who design workplaces, equipment, tools, and processes.

Prereq: Enrolled in a major in the College of Engineering, or Construction Systems Management; or Grad standing. Not open to students with credit for 664 or 665, or to pre-majors.

### 5682.01 Fundamentals of Product Design Engineering U G 3

Lecture covering the fundamentals of the product design process, from concept creation to final implementation, including product architecture and design for manufacture and assembly. An optional, corresponding project-based lab course (ME/ISE 5683) offers practical application of this material. Only open to students enrolled in majors in the College of Engineering.

Prereq: Jr, Sr, or Grad standing in the College of Engineering, or permission of instructor. Not open to students with credit for 5682 (682), 5682.02, 5560, IndEng 682, MechEng 5682 (682), or 5682.02. Cross-listed in MechEng.

### 5682.02 Product Design Engineering for Entrepreneurs U G 3

Fundamentals of the product design process, from concept creation to final implementation, including product architecture and design for manufacture and assembly.

Prereq: Not open to students with credit for 5682, 5682.01, MechEng 5682, 5682.01, or 5194 (Abell - AU15, SP16, AU16). Cross-listed in MechEng.

### 5683 Fundamentals of Product Design Engineering Laboratory U G 1

This course is an optional laboratory to go with ISE/ME5682.01. This project-based lab gives students hands-on experience with the product design process introduced in lecture. Students will work with real people to identify opportunities to create innovative, product-based solutions. Students will go through the design process from conducting user research all the way to constructing prototypes.

Prereq or concur: 5682.01 or MechEng 5682.01, and enrollment in a major within the College of Engineering. Not open to students with credit for 5682, 5682.02, MechEng 5682, or 5682.02. Cross-listed in MechEng.

### 5700 Introduction to Cognitive Systems Engineering U G 3

Human-centered design of consumer products, web sites and complex sociotechnical systems. Topics include human-computer interaction and the design of decision support and distributed work systems.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 3700 (770).

### 5710 Behind Human Error: Safety and Complex Systems U G 3

Covers how complex systems fail and the human contribution to success and failure by studying actual disasters in diverse fields.

Prereq: Sr or Grad standing, or permission of instructor. Not open to students with credit for 875.

### 5720 Human Systems Integration U G 3

Concepts and methods for considering the human as part of the design and operation of any system, especially large scale systems and enterprises.

Prereq: Sr or Grad standing, or permission of instructor.

### 5740 Cognitive Engineering Systems: Human-Centered Automation U G 3

Provides key concepts to make autonomous systems, robots, and artificially intelligent systems team players with responsible people.

Prereq: Sr or Grad standing, or permission of instructor. Not open to students with credit for 771.01. Repeatable to a maximum of 8 cr hrs or 4 completions.

### 5760 Visual Analytics and Sensemaking U G 3

Students learn about information visualization techniques that help people analyze massive amounts of digital data to combat overload and aid sensemaking with applications in retail and financial decision making, logistics, information systems, manufacturing, healthcare, energy and smart grids, cybersecurity and social networks.

Prereq: Jr, Sr, or Grad standing. Not open to students with credit for 773.01.

### 5770 Cognitive Engineering Systems: Design and Evaluation U G 3

Evaluation of product and system design to assess usefulness and usability; advanced design concepts for consumer products, web sites, educational tools and information retrieval systems.

Prereq: Sr or Grad standing, or permission of instructor. Not open to students with credit for 772.

### 5800 Advanced Project Management U G 3

Advanced project management engineering techniques to implement and optimize project-driven change; communication and leadership strategies critical to successful optimization of a firm's processes and systems.

Prereq: 3800, or permission of instructor.

### 5810 Lean Sigma Foundations U G 4

Comprehensive foundation course for the Black Belt Level 'Certificate' (not certification) that is required to complete Green and Black Belt Certification.

Prereq: Stat 3470, and permission of instructor. Not open to students with credit for 685.

### 5811 Lean Sigma Certification Project (Part I) U G 3

Focuses on industry sponsored LeanSigma DMAIC Certification Projects. Project Selection, Definition and Measure are covered in this course.

Prereq: 5810, and Sr standing, and enrollment in Industrial and Systems Engineering, and permission of instructor. Not open to students with credit for 680.01.

### 5812 LeanSigma Certification Project II U G 3

Focuses on industry sponsored Lean Sigma DMAIC Certification Projects. Improve and Control are the phases covered in this course.

Prereq: 5810 and 5811, and permission of instructor. Not open to students with credit for 680.02.

### 5820 Systems Thinking in Engineering and Design U G 3

Concepts and heuristics in systems thinking and complex systems analysis and how these concepts apply to engineering and design projects.

Prereq: Sr or Grad standing, or permission of instructor. Not open to students with credit for 688.

### 5830 Decision Analysis U G 3

Introduction to decision analysis, modern utility theory and risk modeling, Bayesian inference, value of information, multiattribute decision modeling, and application to engineering decisions under uncertainty.

Prereq: 3210 and Stat 3470. Not open to students with credit for 684.

### 5870 Resilience Engineering U G 3

Provides a comprehensive treatment of Resilience Engineering tools to measure, manage, and design complex systems to be resilient in the face of surprising disrupting events.

Prereq: Sr or Grad standing, or permission of instructor.

### 6020 Foundations of Data-Driven Sustainable Energy Systems G 3

Introduction to issues impacting sustainable energy systems across technology, law and policy, business models, resilience, data, geospatial, and decision sciences.

Prereq: Enrollment in Data-Driven Sustainable Energy Systems Graduate Interdisciplinary Specialization, or permission of instructor. Not open to students with credit for AEDEcon 6500, EnvEng 6020, FABEng 6020, Geog 6020, or PubAfrs 6020. Cross-listed in AEDEcon 6500, EnvEng 6020, FABEng 6020, Geog 6020, and PubAfrs 6020.

### 6120 Quality Improvement and Analytics G 3

Learn skills and concepts associated with Quality Management, Lean Six Sigma, and related research with an awareness of recent research.

Prereq: Grad standing in Engr. Not open to students with credit for 4120.

### 6193 Individual Studies in Integrated Systems Engineering G 1 - 4

Special topics of general interest to graduate students in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.

### 6194 Group Studies in Integrated Systems Engineering G 1 - 4

Special topics of general interest to graduate students in Integrated Systems Engineering and related fields.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

### 6290 Stochastic Optimization G 3

Examines the modeling, theory, and solution algorithms for stochastic optimization problems. Prereq: 5200, and Stat 3470 or ISE 7300; or permission of instructor.

### 6300 Simulation for System Analytics and Decision-Making G 3

Students learn how to collect data and perform input analysis, model systems using discrete-event simulation, and inform system design decision-making through defensible output analysis.

Prereq: Stat 3470 or equiv, and Calculus-based Probability. Not open to students with credit for 730.

### 6557 Advanced Metallic Materials and Processing G 2

A graduate class in design, processing and simulation of advanced metallic materials including alloys (ferrous and non-ferrous) and metal matrix composites.

Prereq: Grad standing in MatScEn, WeldEng, MechEng, AeroEng, NuclrEn, ISE; or permission of instructor. Not open to students with credit for MatScEn 6757. Cross-listed in MatScEn

### 6801 Project Management for Engineers G 3

Provides foundational and advanced project management education in an interactive online learning environment as part of the Master of Global Engineering Leadership program.

Prereq: Enrollment in Master of Global Engineering Leadership program, and permission of instructor. Not open to students with credit for 3800.

### 6840 Market Engineering and Applications G 4

Introduction to market engineering concepts and applications to contemporary market design problems such as resource allocation, information aggregation, and decentralized control.

Prereq: 3210 or equiv, and Econ 2001.01 or equiv, and Stat 3470 or equiv, and graduate standing; or permission of department. Not open to students with credit for 5840, or 603, or 703.

### 6999 Research for Thesis in Industrial & Systems Engineering G 1 - 15

Research for the Masters Thesis in Industrial and Systems Engineering.

Prereq: Grad standing in the M.S. program in Industrial and Systems Engineering. Repeatable to a maximum of 50 cr hrs or 10 completions. This course is graded S/U.



<b>7120</b>	<b>Advanced Quality Control and Improvement</b>	<b>G</b>	<b>3</b>
Students learn techniques associated with the Total Quality Management and Lean Sigma and additional advanced quality technology. These techniques facilitate measurements of system quality, data-driven system design, and system control/standardization. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4120 (510), 610, IndEng 509, or 610.			
<b>7193</b>	<b>Individual Studies in Integrated Systems Engineering</b>	<b>G</b>	<b>1 - 4</b>
Individual studies for advanced graduate students in Integrated Systems Engineering and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Integrated Systems Engineering</b>	<b>G</b>	<b>1 - 4</b>
Special topics of general interest to advanced graduate students in Integrated Systems Engineering and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>7200</b>	<b>Advanced Nonlinear Optimization</b>	<b>G</b>	<b>3</b>
Unconstrained and constrained nonlinear optimization, covering applications, theory dealing with convexity, optimality conditions, duality, and algorithms. Prereq: Calculus, linear algebra, computer programming, and an introductory optimization course, or permission of instructor. Not open to students with credit for both 820 and 821.			
<b>7202</b>	<b>Reinforcement Learning</b>	<b>G</b>	<b>3</b>
Fundamentals of Markov decision processes and reinforcement learning algorithms. Prereq: Grad standing in Engineering or Math. Cross-listed in ECE.			
<b>7210</b>	<b>Large Scale Optimization</b>	<b>G</b>	<b>3</b>
Introduction to decomposition-coordination methods. Topics include cutting-stock problems, column and row generation methods, and stochastic programming. Prereq: 5200. Not open to students with credit for 823.			
<b>7230</b>	<b>Integer Optimization</b>	<b>G</b>	<b>3</b>
Introduction to the theory and solution methods for optimization problems which contain integer variables. Topics include polyhedral theory, cutting planes, branch-and-bound. Prereq: Calculus, Linear Algebra, and Linear Programming. Not open to students with credit for 822.			
<b>7250</b>	<b>Operations Research Models and Methods</b>	<b>G</b>	<b>3</b>
Examines many basic operations research models from network theory, integer programming, queuing theory, inventory theory and nonlinear programming. Algorithmic concepts are discussed. Prereq: 5200. Not open to students with credit for 881.			
<b>7300</b>	<b>Stochastic Processes</b>	<b>G</b>	<b>3</b>
Stochastic processes commonly used in Industrial and Systems Engineering, including renewal processes and continuous time Markov chains. Prereq: 6300 or equiv. Not open to students with credit for 830.			
<b>7420</b>	<b>Sequencing and Scheduling</b>	<b>G</b>	<b>3</b>
Survey of sequencing/scheduling problems encountered in management systems. Emphasis is given to those problems and solution methods found in the literature. Prereq: 5200, Calculus, and Linear Algebra. Not open to students with credit for 841.			
<b>7510</b>	<b>Computational Analysis of Manufacturing Processes</b>	<b>G</b>	<b>3</b>
This course is designed to teach graduate students about constitutive models used for numerical simulation of the inelastic behavior of bulk and sheet materials. Prereq: Grad standing in ISE, or MechEng, or MatScEn; and knowledge using commercial math software (Matlab, etc.), or ability to write simple codes with Fortran, C++, etc., and knowledge using commercial FEA code (e.g. ABAQUS, LS-Dyna, PAM STAMP, ANSYS, DEFORM, etc.). Prereq or concur: MechEng 7100, or equiv.			
<b>7610</b>	<b>Advanced Topics in Biomechanics and Musculoskeletal Disorders: Spine Biomechanics</b>	<b>G</b>	<b>3</b>
Advanced readings course of papers on occupational epidemiology, physiology, work-related musculoskeletal disorders, pathophysiology, biomechanics, anthropometry, electromyography, imaging, and modeling as related to spine biomechanics. Prereq: 5600 (660), or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>7615</b>	<b>Biomechanics Research Practicum: Experience in Spine Biomechanics</b>	<b>G</b>	<b>3</b>
Builds upon theoretical information developed in ISE 7610. Provides link between theory and laboratory measurement in assessment of biomechanical issues for occupational low back disorder. Prereq: 7610 or 7620 or 7630 or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>7620</b>	<b>Advanced Topics in Biomechanics and Musculoskeletal Disorders: Upper Extremity Biomechanics</b>	<b>G</b>	<b>3</b>
Advanced readings course of papers on occupational epidemiology, physiology, work-related musculoskeletal disorders, pathophysiology, biomechanics, anthropometry, electromyography, imaging, and modeling as related to upper extremity biomechanics. Prereq: 5600 (660), or permission of instructor. Repeatable to a maximum of 9 cr hrs.			

<b>7625</b>	<b>Biomechanics Research Practicum: Experience in Upper Extremity Biomechanics</b>	<b>G</b>	<b>3</b>
Builds upon theoretical information developed in ISE 7620. Provides link between theory and laboratory measurement in assessment of biomechanical issues for occupational upper extremity disorders. Prereq: 7610 or 7620 or 7630 or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>7700</b>	<b>Cognitive Systems Engineering: Advanced Topics</b>	<b>G</b>	<b>3</b>
Seminar on emerging themes about human-machine systems and how these relate to current societal issues. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.			
<b>7720</b>	<b>Cognitive Systems Engineering: Models and Methods</b>	<b>G</b>	<b>3</b>
Covers models of human-machine cognitive systems and methods to study of human-machine cognitive systems in complex work settings. Prereq: Grad standing. Repeatable to a maximum of 9 cr hrs.			
<b>7882</b>	<b>Interdepartmental Seminar for MBLE program</b>	<b>G</b>	<b>1 - 4</b>
Seminars of general interest to students in the MBLE program, Integrated Systems Engineering, and related fields. Prereq: Enrollment in the MBLE program, or permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>7883</b>	<b>Department Seminar</b>	<b>G</b>	<b>1</b>
Provided graduate students with a broad exposure to current research within the various branches of Industrial Engineering, including operations research, human factors/ergonomics, and manufacturing. Prereq: Grad standing in ISE. Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Integrated Systems Engineering</b>	<b>G</b>	<b>1 - 4</b>
Special topics of general interest to doctoral students in engineering and related fields. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>8299</b>	<b>Special Topics in Optimization</b>	<b>G</b>	<b>1 - 4</b>
Selected topics in optimization, of special interest to advanced graduate students in Industrial and Systems Engineering and related fields. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>8850</b>	<b>Practice in Operations Research</b>	<b>G</b>	<b>3</b>
Application of Operations Research methods in manufacturing, financial, governmental, educational, and service organizations. Students work on actual problems of a sponsoring organization and present oral and written reports. Prereq: 881. Not open to students with credit for 885. Repeatable to a maximum of 6 cr hrs.			
<b>8998</b>	<b>Research in Integrated Systems Engineering</b>	<b>G</b>	<b>1 - 15</b>
Opportunity to conduct research in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 50 cr hrs or 10 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Integrated Systems Engineering for Dissertation</b>	<b>G</b>	<b>1 - 15</b>
Opportunity to conduct dissertation research in Integrated Systems Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 50 cr hrs or 10 completions. This course is graded S/U.			

## Internal Medicine

<b>4998</b>	<b>Undergraduate Research Independent Study Course</b>	<b>U</b>	<b>1 - 10</b>
To gain laboratory research experience and knowledge of the cellular, molecular, and immune biology principles fundamental to gastrointestinal research and relate these principles to the normal and diseased gastrointestinal system. Prereq: Permission of instructor. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Independent Study Course</b>	<b>U</b>	<b>3 - 5</b>
Research under the direction of a department of Internal Medicine Faculty member. Prereq: Permission of instructor. This course is graded S/U.			
<b>7000</b>	<b>Foundation in Medicine I</b>	<b>G</b>	<b>2</b>
Normal human systems and pathophysiology needed for the practice of genetic counseling and working with a healthcare team. This course will cover cell biology, tumor biology, metabolism, musculoskeletal, skin, reproductive and cardiovascular systems. One hour a week of course will include a practice or case-based learning approach in alignment with content delivered in IntMed 7020 & 7040. Repeatable to a maximum of 6 cr hrs.			
<b>7010</b>	<b>Foundations in Medicine II</b>	<b>G</b>	<b>2</b>
Continuation of Fdn Med 1. Normal human systems & pathophysiology for the practice of genetic counseling and working with a healthcare team. Course will cover cell biology, tumor biology, metabolism, musculoskeletal, skin, reproductive and cardiovascular systems. 1 hr/wk of course will include a practice or case-based learning approach which will be in alignment with content delivered in 7030. Prereq: 7000.			

## 264 Internal Medicine

**7020 Foundations in Genetics I** G 3

Covers etiology, natural history, and treatment of genetic disorders needed for the practice of genetic counseling and working with a healthcare team. One hour a week of this course will include a practice based or case-based learning approach which will be in alignment with the content delivered in alignment with the content delivered in IntMed 7000.

**7030 Foundations in Genetics II** G 3

Continuation of Fdn Gen 1. It will cover etiology, natural history, and treatment of genetic disorders needed for the practice of genetic counseling and working with a healthcare team. One hour a week of this course will include a practice based or case-based learning approach which will be in alignment with the content delivered in alignment with the content delivered in IntMed 7010.  
Prereq: 7020.

**7040 Foundations in Genetic Counseling I** G 2

Provides a framework for the evolution and models of genetic counseling practice. An introduction to the fundamental skills, including pedigree taking and analysis, case preparation, obtaining medical and developmental histories, and interview techniques, necessary to practice will be provided.

**7050 Foundations in Genetic Counseling II** G 2

Continuation of Fdn GenCoun1 provides a framework for the evolution and models of genetic counseling practice. An introduction to the fundamental skills, including pedigree taking and analysis, case preparation, obtaining medical and developmental histories, and interview techniques, necessary to practice will be provided.  
Prereq: 7040.

**7080 Advanced Genetic Counseling I** G 3

Explore psychological impact of genetic conditions on the individual & family; review and application of counseling theory & interview techniques in GC practice. Role-play, case discussion, and interactions with consumers of genetic services will be utilized to achieve the course goals and learning objectives.

**7090 Advanced Genetic Counseling II** G 3

Advanced genetic counseling practice with attention to ethical, legal, social issues. Sessions on professional development topics, such as CV development, employment interview preparation, involvement in professional organizations, and advocacy roles will be addressed. Role-play, case discussion, and interactions with consumers of genetic services will be utilized to achieve goals & objectives.  
Prereq: 7080.

**7100.01 Advanced Clinical Skills: Reproductive Counseling** G 1

Students will gain skills needed to provide reproductive genetic counseling. Aspects of discipline explored in the context of case preparation, med and fam history analysis, risk assess and counseling, diff diag, offering appropriate testing options, interpreting results, explaining complex genetics concepts to patients, creating visual aids for counseling, and psychosocial assess. & counseling.

**7100.02 Advanced Clinical Skills: Cardiogenetic Counseling** G 1

Students will focus on the skills needed to provide adult genetic counseling services (cardiogenetics, neurogenetics, and medical genetics). Aspects of discipline explored in the context of case preparation, med and fam history analysis, risk assess and counseling, diff diag, offering appropriate testing options, interpreting results, explaining complex genetics concepts to patients, creating visual aids for counseling, and psychosocial assess. & counseling.

**7100.03 Advanced Clinical Skills: Pediatric Counseling** G 1

Students will gain skills needed to provide pediatric genetic counseling. Aspects of discipline explored in context of case prep, med and fam hist. analysis, risk assess. and counseling, differential diagnosis, offering appropriate testing options, interpreting results, explaining complex genetics concepts to patients, creating visual aids for counseling, and psychosocial assess. & counseling.

**7100.04 Advanced Clinical Skill: Cancer Counseling** G 1

Students will gain skills needed to provide cancer genetic counseling. Aspects of discipline explored in context of case prep, med and fam hist. analysis, risk assess. and counseling, differential diagnosis, offering appropriate testing options, interpreting results, explaining complex genetics concepts to patients, creating visual aids for counseling, and psychosocial assess. & counseling.

**7189.01 Clinical Practicum I** G 3

Students will observe and be introduced to content, skills, and resources utilized in genetic testing laboratories and counseling. Students will be placed in several different genetic testing laboratories and participate in laboratory activities to understand the techniques used in the laboratory setting. Students will participate in a clinical placement in a designated clinic for seven weeks.  
This course is graded S/U.

**7189.02 Clinical Practicum II** G 1½

Students will observe and begin to participate in clinical care. Placements will be 1-2 days per week.  
Prereq: 7189.01. This course is graded S/U.

**7189.03 Clinical Practicum III** G 1½

Students will gain practical experience by providing genetic counseling services in a clinical placement 2-3 days per week. They will apply content learned in other courses and will work to achieve goals based on Practiced Based Competencies determined by the American Board of Genetic Counseling.  
This course is graded S/U.

**7189.04 Summer Clinical Practicum IV** G 5

Students will gain practical experience by providing genetic counseling services in a five day a week, six week long clinical placement. They will apply content learned in other courses and will work to achieve comprehensive cases towards their ABGC clinical log book.  
This course is graded S/U.

**7189.05 Clinical Practicum V** G 5

Students will gain practical experience by providing genetic counseling services in a five day a week, six week long clinical placement. They will apply content learned in other courses and will work to achieve comprehensive cases towards their ABGC clinical log book.  
This course is graded S/U.

**7189.06 Clinical Practicum VI** G 2

Students will participate in clinical care. Placements will be 2-3 days per week.  
This course is graded S/U.

**7189.07 Clinical Practicum VII** G 2

Students will participate in clinical care. Placements will be 2-3 days per week.  
This course is graded S/U.

**7189.08 Clinical Practicum VIII** G 2

Students will observe and begin to participate in clinical care. Placements will be 2-3 days per week.  
This course is graded S/U.

**7189.09 Clinical Practicum IX** G 2

Students will observe and begin to participate in clinical care. Placements will be 2-3 days per week.  
This course is graded S/U.

**7193.01 Individual Studies: Allergy/Immunology** G 1 - 18

All months, 1 or more months to be elected. Research on a minor problem under faculty supervision in the following specialties of medicine: Allergy/Immunology.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7193.02 Individual Studies: Cardiology** G 1 - 18

All months, one or more months to be elected. Research on a minor problem under faculty supervision in the following specialties of medicine: Cardiology.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7193.04 Individual Studies: Endocrinology** G 1 - 18

All months, 1 or more months to be elected. Research on a focused problem under faculty supervision in the following specialties of medicine: Endocrinology.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7193.05 Individual Studies: Gastroenterology** G 1 - 18

All months, 1 or more months to be elected. Research on a focused problem under faculty supervision in the following specialties of medicine: Gastroenterology.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7193.07 Individual Studies: Hematology** G 1 - 18

All months, one or more months to be elected. Research on a minor problem under faculty supervision in the following specialties of medicine: Hematology.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7193.09 Individual Studies: Pulmonary Diseases/Allergy/Critical Care and Sleep Medicine** G 1 - 4

All months, 1 or more months to be elected. Research on a minor problem under faculty supervision in the following specialties of medicine: Pulmonary Diseases(PACCS).  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**7193.10 Individual Studies: Renal Disease** G 1 - 18

All months, 1 or more months to be elected. Research on a focused problem under faculty supervision in the following specialties of medicine: Renal Diseases.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7193.11 Individual Studies: Rheumatology** G 1 - 18

All months, one or more months to be elected. Research on a focused problem under faculty supervision in the following specialty of medicine: Rheumatology.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**7300 Public Health Genetics** G 1

Introduction to the complex issues that exist when integrating genetic technology and information into public health. Basic public health concepts, the history of public health genetics and programs will be covered. Examine the integration of genetic information into public health policy, assess public access to genetic services and information and consider ways in which genetic counselors disseminate genetic information and influence health behavior.

<b>7780</b>	<b>Research Methods</b>	<b>G</b>	<b>2</b>
Develop skills to conduct genetic research studies; including choosing research mentors, writing human research protocols, obtaining informed consent, developing research projects, study design, the scientific method, the basics in obtaining research funding, and presentation of research in the form of abstracts and posters.			
<b>7891.01</b>	<b>Genetic Counseling Seminar Series I</b>	<b>G</b>	<b>1</b>
Discussion of pertinent literature, research problems, and clinical cases in various specialties with an emphasis on the application to genetic counseling research and clinical services. Repeatable to a maximum of 2 or hrs. This course is graded S/U.			
<b>7891.02</b>	<b>Genetic Counseling Seminar Series II</b>	<b>G</b>	<b>1</b>
Discussion of pertinent literature, research problems, and clinical cases in various subspecialties with an emphasis on the application to genetic counseling research and clinical services. This course is graded S/U.			
<b>7999.01</b>	<b>Thesis I</b>	<b>G</b>	<b>2</b>
Students will implement their IRB-approved graduate level research project developed in IntMed 7998 under the supervision of a thesis advisory committee. Prereq: 7998. This course is graded S/U.			
<b>7999.02</b>	<b>Thesis II</b>	<b>G</b>	<b>2</b>
Students will implement IRB approved graduate level research project developed in IntMed 7998. Prereq: 7998. This course is graded S/U.			
<b>7999.03</b>	<b>Thesis III</b>	<b>G</b>	<b>3</b>
Students complete data collection and data analysis. Manuscript will be prepared and reviewed by thesis committee. This course is graded S/U.			
<b>7999.04</b>	<b>Thesis IV</b>	<b>G</b>	<b>2</b>
Students complete manuscript for approval by thesis committee and oral defense is scheduled. This course is graded S/U.			
<b>8010</b>	<b>The Business of Genetics</b>	<b>G</b>	<b>1</b>
Explore the strategic planning and program development aspects of clinical genetics services and reinforce the communication, administration and analytical skills developed in other areas of coursework. Specific areas: making a business plan, marketing and public relations, government relations, credentialing and licensure will be addressed.			
<b>8050</b>	<b>Current Technologies</b>	<b>G</b>	<b>2</b>
Through clinical cases, laboratory reports, and in-class exercises, we will investigate the techniques used in clinical diagnostic testing and screening to identify alterations in the genome and the bioinformatics resources used to interpret them.			
<b>8999</b>	<b>Research</b>	<b>G</b>	<b>1 - 25</b>
Research for thesis or dissertation purposes only. Repeatable to a maximum of 25 or hrs or 25 completions. This course is graded S/U.			

## International Studies

<b>2050</b>	<b>Introduction to China and Japan</b>	<b>U</b>	<b>3</b>
Multidisciplinary survey of contemporary Asian civilizations: their geographical and racial backgrounds, historical and cultural heritages, social organizations, economic and political problems and international relations. Prereq: Not open to students with credit for 235. GE soc sci orgs and politics and diversity global studies course.			
<b>2100</b>	<b>Introduction to Latin America</b>	<b>U</b>	<b>3</b>
Interdepartmental survey of Latin American societies, anthropology, economics, history, literature, geography, and agriculture. Prereq: Not open to students with credit for 240. GE soc sci human, nat, and econ resources and diversity global studies course.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Groups of students are offered the opportunity to pursue the interdepartmental study of special topics. Prereq: Permission of instructor. Not open to students with 15 qtr or hrs of 294. Repeatable to a maximum of 9 or hrs or 9 completions.			
<b>2200</b>	<b>Introduction to the Modern Middle East</b>	<b>U</b>	<b>3</b>
Interdepartmental survey of the land, people, history, politics, religions, philosophy, social institutions, economic development, literature, and the arts. Prereq: Not open to students with credit for 245. GE soc sci orgs and politics and diversity global studies course.			
<b>2250</b>	<b>Russia: From Communism to Capitalism</b>	<b>U</b>	<b>3</b>
Survey of the birth, growth, and death of the communist Soviet Union and of the cultural, social, economic, and political trajectory of its successor, Russia. Prereq: Not open to students with credit for 230 or 2250H (230H). GE soc sci orgs and politics and diversity global studies course.			

<b>2500</b>	<b>Introduction to Development Studies</b>	<b>U</b>	<b>3</b>
Examines theories of political economy and development, as well as the historical geography of global capitalism and contemporary issues in international economic development. Prereq: Not open to students with credit for 215. GE soc sci human, nat, and econ resources and diversity global studies.			
<b>2580</b>	<b>Feast or Famine: the Global Business of Food</b>	<b>U</b>	<b>3</b>
Global and regional trends in food consumption and production are surveyed. Trade, technological change, and other responses to food scarcity are analyzed. Prereq: Not open to students with credit for 2580 (280) or AEDEcon 2580 (280) or 335. GE soc sci human, nat, and econ resources and diversity global studies course. Cross-listed in AEDEcon 2580.			
<b>2797.02</b>	<b>Study Abroad: Contemporary Uganda</b>	<b>U</b>	<b>3</b>
Enhancing the study of the history, culture, geography and society of Uganda by visiting the country. GE education abroad course.			
<b>2800</b>	<b>Introduction to Peace Studies</b>	<b>U</b>	<b>3</b>
The meanings of peace and peacelessness in today's world, varied approaches to peace, contributions of many disciplines and professionals, and the significance of peoples' movements. Prereq: Not open to students with credit for 201. GE soc sci orgs and politics and diversity global studies course.			
<b>2800H</b>	<b>Introduction to Peace Studies</b>	<b>U</b>	<b>3</b>
The meaning of peace and peacelessness in today's world, varied approaches to peace, contributions of many disciplines and professionals, and the significance of people's movements. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 201. GE soc sci orgs and politics and diversity global studies.			
<b>3350</b>	<b>Introduction to Western Europe</b>	<b>U</b>	<b>3</b>
Presents an introductory overview of the historical background to modern Western Europe. It surveys the development of society & politics, as well as the evolution of art, architecture & music. Prereq: Not open to students with credit for 210. GE historical study and soc sci human, nat, and econ resources and diversity global studies course.			
<b>3400</b>	<b>The Analysis and Display of Data</b>	<b>U</b>	<b>3</b>
Introduction to the analysis of data. Topics include sampling, data collection, probability, inference, random variables, display of data, correlation, and analysis of variance. This course does not count toward a course elective for Econ majors. Prereq: Not open to students with credit for Econ 3400, 4400, 5410, 5420, Stat 1430, 1450, 2450 or AEDEcon 2005. GE data only course. Cross-listed in Econ.			
<b>3450</b>	<b>Human Rights: An Introduction</b>	<b>U</b>	<b>3</b>
Provides an interdisciplinary introduction to the conceptual history as well as the practice of human rights. It traces the evolution of the idea of human rights, its adoption in international and domestic covenants, its role in domestic and international political disputes and its (non-) adoption by governments and civil society. Its essentially contested nature is also discussed.			
<b>3661</b>	<b>The City and Culture</b>	<b>U</b>	<b>3</b>
Introduction to the comparative and cross-cultural study of cities, urban culture, and urbanism. Prereq: One course in CompStd or IntStd, or permission of instructor. Not open to students with credit for 4661 (531) or CompStd 4661 (531) or CompStd 3661. Cross-listed in CompStd.			
<b>3700</b>	<b>Introduction to Intelligence</b>	<b>U</b>	<b>3</b>
Comprehensive introduction to the gathering, analysis, and use of military and political intelligence in a number of countries. Prereq: Not open to students with credit for 350.			
<b>3701</b>	<b>Introduction to Homeland Security</b>	<b>U</b>	<b>3</b>
Comprehensive overview of U.S. homeland security. Threats from natural disasters, terrorism, and other domestic and external sources will be studied, as will programs and technologies involved in disaster prevention and response. Prereq: Soph standing or higher, or permission of instructor. Not open to students with credit for 300.			
<b>3702</b>	<b>Herding Cyber Cats: Information Security Management</b>	<b>U</b>	<b>3</b>
This hands on course will focus on information security governance tools and processes. Students will learn the basic structures and activities used by Information Security professionals to manage information security and cyber risks which threaten us as individuals and organizations. Prereq: Soph standing or above, or permission of instructor.			
<b>3797</b>	<b>Four week Global May Programs</b>	<b>U</b>	<b>1</b>
Course deals with global issues from the perspective of both the host country and the US. Repeatable to a maximum of 2 or hrs.			
<b>3850</b>	<b>Introduction to Globalization</b>	<b>U</b>	<b>3</b>
Analysis of globalization in its various aspects, economic, political, environmental and technological, as well as of its extent and desirability. Prereq: Soph standing or above, or permission of instructor. Not open to students with credit for 356. GE soc sci indivs and groups and diversity global studies course.			

## 266 International Studies

**4195 Selected Problems in International Studies** U 3

Class discussions, with several guest speakers, informal conferences, and a reading and research program arranged to meet the special needs of those enrolled.  
Repeatable to a maximum of 9 cr hrs.

**4242 Incomplete Democracies: the (Un)Rule of Law in Latin America** U 3

Explores various forms of violence including electoral violence and political assassination, organized crime, police brutality, and other human rights abuses in Latin America.  
Prereq: Soph standing or above. Not open to students with credit for 542 or PoliSci 4242. Cross-listed in PoliSci 4242.

**4251 Organized Crime and Corruption in Contemporary Europe** U 3

Organized crime and corruption in Post-Communist Europe. Trafficking in drugs, weapons, organs, people and nuclear materials will be explored.  
Prereq: Soph standing or higher, or permission of instructor. Not open to students with credit for 533.

**4320 Energy, the Environment, and the Economy** U 3

Examines the economic implications of climate change and climate change policies for society, including discussion of major state, federal, and international legislation.  
Prereq: AEDEcon 2001 (200) or Econ 2001 (200). Not open to students with credit for 565, 4320E, or AEDEcon 4320 (565). Cross-listed in AEDEcon.

**4320E Energy, the Environment, and the Economy** U 3

Understand the role of energy in the economy and the environment. Explore the economics of clean, renewable energy, and understand the different policies for pollution control.  
Prereq: AEDEcon 2001 (200), or Econ 2001.01, 2001.02 or 2001.03H (200). Not open to students with credit for 4320 (565), AEDEcon 4320 (565) or 4320E. Cross-listed in AEDEcon.

**4451 The Immigration Controversy through Film** U 3

Examines the controversial phenomenon of immigration through the medium of film. Throughout the semester, we will examine the politics of migration through scholarly materials focusing on concepts like globalization, citizenship, and identity in order and delve into the latest policy developments in the realm of immigration regulation and border enforcement.

**4515 Ethnicity, Development, and the State in Sub-Saharan Africa** U 3

Takes a theoretical and comparative historical approach to analyzing problems of development and ethnic conflict in Sub-Saharan Africa.  
Prereq: Soph standing or above. Not open to students with credit for 515 or AfAmAST 4515 (515). Cross-listed in AfAmAST 4515 (515).

**4532 Food Security and Globalization** U 3

Examination of the causes and solutions for food insecurity. Global and local factors that affect access to food are also considered.  
Prereq: AEDEcon 2001 (200) or Econ 2001 (200); or permission of instructor. Not open to students with credit for 434 or 532; or AEDEcon 4532 (532) or 434. Cross-listed in AEDEcon 4532.

**4534 Comparative Challenges to Economic Development: Sub-Saharan Africa, Latin America, and China** U 3

An introductory survey course of issues shaping economic development in Sub-Saharan Africa, Latin America, and China, such as: population growth, agricultural development, industrialization, trade, structural adjustment, and environmental issues.  
Prereq: AEDEcon 2001 (200), or 2001H (200H), or Econ 2001 (200), or 2001H (200H). Not open to students with credit for 4536 (536), or 4538 (538), or 4539 (539), or AEDEcon 4534, or 4536 (536), or 4538 (538), or 4539 (539). Cross-listed in AEDEcon.

**4535 International Economic Development** U 3

Study of the growth and diversification of developing economies and the causes of poverty and inequality. Analyze the impacts of human capital formation, markets and public policy on development.  
Prereq: AEDEcon 2001 (200) or Econ 2001 (200). Not open to students with credit for 435, 535, PubAFrs 4535, AEDEcon 4535 (535), or 435. Cross-listed in AEDEcon and PubAFrs.

**4537 Middle Eastern Economic Development** U 3

Introduction to current economic issues facing Middle Eastern countries, and the similarities and differences in their growth, inflation, unemployment, fiscal and monetary policy, imports, exports, foreign debt and exchange rate policies.  
Prereq: AEDEcon 2001 (200), or Econ 2001 (200) and 2002 (201), or equiv. Not open to students with credit for 437, 537, Econ 4537 (537), AEDEcon 4537 (537), or 437. Cross-listed in AEDEcon and Econ.

**4540 International Commerce and the World Economy** U 3

Application of trade theory and policies to world trade that impacts global business.  
Prereq: AEDEcon 2001 (200), 2001H (200H), Econ 2001 (200), or 2001H (200H), or permission of instructor. Not open to students with credit for 540 or AEDEcon 4540 (540). Cross-listed in AEDEcon.

**4550 Bioterrorism: An Overview** U 3

A broad awareness course on the bioterrorism threat to our food supply, crops, animal and public health, and bioterrorist organizations.  
Prereq: Jr or Sr standing. Not open to students with credit for 455 or PlntPth 4550 (455). Cross-listed in PlntPth.

**4560 Cooperation and Conflict in the Global Economy** U 3

The economic, social, and political bases for, and responses to, increasing global economic integration.  
Prereq: Econ 2001 (200) and 2002 (201), or 400, or equiv. Not open to students with credit for 556 or Econ 4560 (556). Cross-listed in Econ.

**4597.01 Food, Population, and the Environment** U 3

Issues related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these concerns, especially in low-income countries.  
Prereq: Jr or Sr standing. Not open to students with credit for 597.01, 4597.01H (597.01H), AEDEcon 4597.01 (597.01), or AEDEcon 4597.01H (597.01H). GE cross-disciplinary seminar course. Cross-listed in AEDEcon.

**4700 Terror and Terrorism** U 3

Focus on the origins, evolution and place of terrorism in the modern world and the ideology, motivation, and methods of a number of terrorist groups.

**4701 The Development and Control of Weapons of Mass Destruction** U 3

Offers students an overview of the issues relating to atomic, biological, and chemical weapons, commonly referred to as weapons of mass destruction (WMD).  
Prereq: Not open to students with credit for 555.

**4702 Case Studies in Information Security** U 3

This course will provide students who have taken an introductory Information Security course a deeper understanding of the background, terminology and concepts of Information Security. The course will focus heavily of behavioral outcomes, such as developing security requirements from business use-cases, comparing security requirements against implementation reality.

**4703 Science, Technology and the American National Security** U 3

Explores how science and technology, especially computer science and arms race technologies, influence American actions and priorities in an increasingly complex national security environment.  
Prereq: Not open to students with credit for 554.

**4704 A Global War on Terror? America's Response to the 9/11 Attacks** U 3

Explores the domestic and international impacts of the 9/11 terrorist attacks against the United States. Four different but interrelated wars will be studied: the war against the Taliban in Afghanistan and Pakistan, the war in Iraq, the global war on terror, and the war on the home front-curtailment of civil liberties, militarization of U.S. society, domestic terrorism.  
Prereq: Soph standing or above.

**4800 Cultural Diplomacy** U 3

Cultural Diplomacy is the exchange of information, ideas and values among nations and peoples. Public and private mechanisms for these exchanges are explored.  
Prereq: Soph standing or above, or permission of instructor. Not open to students with credit for 550.

**4801 Model United Nations** U 3

Interactive diplomatic simulation of the political processes of the UN system focusing on selected global problems; involves class discussion, group projects, and significant student participation.  
Prereq: Not open to students with credit for 552.

**4802 Problems and Prospects for Peace** U 3

Integrated seminar focusing on problems encountered with peace strategies and both short and long-term prospects for peaceful change.  
Prereq: Soph standing, or permission of instructor.

**4803 Intervening for Peace: Peacekeeping and Collective Security** U 3

Exploration of the theory and practice of international peacekeeping and collective security.  
Prereq: Not open to students with credit for 551.

**4804 Applied Nonviolence I: Methods** U 3

Provides an introduction to the strategies and methods of pursuing peace and social justice through nonviolence. Through a combination of reading, discussion, and practical experiments participants will develop a sound understanding of nonviolence theory and practice.  
Prereq: 2800.

**4805 Applied Nonviolence II: Experiment** U 3

Applies the knowledge acquired from Applied Nonviolence I and is intended to develop and test the skills necessary to becoming a professional nonviolent activist.  
Prereq: 4804.

**4806 Intelligence for Diplomacy: Assessing Leadership Style** U 3

The assessment of leadership style is one of several core foci for intelligence analysts. It contributes to predictions of a leader's likely behavior. More importantly, it guides efforts, in particular diplomatic efforts, to influence the decisions of political, economic and military leaders. This course introduces students to key theories and research in the political psychology of leadership.  
Prereq: Soph standing or higher, or permission of instructor. Not open to students with credit for 5195 (Assessing Leadership Style).

<b>4850</b>	<b>Understanding the Global Information Society</b>	<b>U</b>	<b>3</b>
Invites students to think critically about the global networks that are shaping the new knowledge creation & sharing processes. To monitor news, investigate web resources & gather information for assignments, report & case study analysis. Prereq: Soph standing, or permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in International Studies</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research or creative activities in variable topics. Prereq: Regular faculty mentor, and permission of department. Repeatable to a maximum of 9 or hrs or 9 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Informal conferences to maximize the student's initiative and academic maturation; student and faculty advisor choose a research topic; the results are tested by a written thesis and an oral exam. Must receive a mark of S to graduate with Research Distinction. Prereq: GPA 3.4 or above, and Jr or Sr standing; and permission of tenure-track thesis advisor and department. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>4999H</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Informal conferences to maximize the student's initiative and academic maturation; student and faculty advisor choose a research topic; the results are tested by a written thesis and an oral examination. Prereq: Good standing in Honors College, tenure-track faculty supervisor, and permission of department. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>5050</b>	<b>Two Koreas: Political Economy of Regional Rivalry</b>	<b>U G</b>	<b>3</b>
Understanding the Korean peninsula. Course will focus on the nature of North and South Korean regional rivalry and its global impacts. Security issues include North Korean nuclear threat, military alliances, & reunification prospects. Prereq: Soph standing, or permission of instructor.			
<b>5051</b>	<b>East Asia in the Post-Cold War Era: Issues in Regional Security &amp; Economic Development</b>	<b>U G</b>	<b>3</b>
Become familiar with and to analyze East Asian regional security and economic issues in the post-Cold War era. Looking at the region as an international subsystem, the course focuses on the regional level and examines its global consequences. Prereq: Soph standing, or permission of instructor.			
<b>5191</b>	<b>Student Intern Program in International Studies</b>	<b>U G</b>	<b>3 - 9</b>
Opportunity to gain knowledge of the policy process in a local, national, international or government agency. Prereq: GPA 3.0 or above, and Jr, Sr, or Grad standing. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 6</b>
Designed to give able students an opportunity to pursue a special course of study not otherwise available to them in course form. Prereq: Permission of instructor. Not open to students with credit for 693. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Not open to students with credit for 694. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>5195</b>	<b>Selected Problems in International Studies</b>	<b>U G</b>	<b>3</b>
Class Discussions, with several guest speakers, informal conferences, and a reading and research program arranged to meet the special needs of those enrolled. Counts against credits IntStds major can receive for 419. Prereq: Jr or Sr standing. Repeatable to a maximum of 9 cr hrs.			
<b>5640</b>	<b>Globalization and Latin America: Multi-Disciplinary Approaches</b>	<b>U G</b>	<b>3</b>
Explores current debates on globalization in Latin America and recent and interrelated transformations in the economies, politics, and cultures of the region. Prereq: Jr standing or above. Not open to students with credit for 640 or Spanish 5640 (640). Cross-listed in Spanish.			
<b>5645</b>	<b>Contemporary Issues in the Middle East</b>	<b>U G</b>	<b>3</b>
Intensive examination of contemporary issues in the Middle East by applying an interdisciplinary approach. Prereq: 2200 (245), or Jr standing. Not open to students with credit for 645 or NELC 5645 (645). Cross-listed in NELC.			
<b>5700</b>	<b>Rebuilding Failed and Weak States</b>	<b>U G</b>	<b>3</b>
Tackles the question of how to design policies and programs to rebuild failed and weak states into functioning, if not vibrant democracies. Prereq: Soph standing or above, or permission of instructor. Not open to students with credit for PubAfrs 5700 (670) or PubPolM 670. Cross-listed in PubAfrs.			
<b>5701</b>	<b>Intelligence and National Security in a Changing World</b>	<b>U G</b>	<b>3</b>
An in-depth look at US intelligence practices, effectiveness & impact on policymaking; examines the role of secret activities in a democracy; delves heavily into current events from an intelligence perspective; looks at new intelligence challenges. Prereq: 3700 or 3700H (350 or 350H), or permission of instructor.			

<b>5701E</b>	<b>Intelligence and National Security in a Changing World</b>	<b>U G</b>	<b>3</b>
An in-depth look at US intelligence practices, effectiveness and impact on policymaking; examines the role of secret activities in a democracy; delves heavily into current events from an intelligence perspective; looks at new intelligence challenges. Prereq: Honors standing, and 3700 (350) or 3700H (350H); or permission of instructor.			
<b>5702</b>	<b>Research on Organized Violence</b>	<b>U G</b>	<b>3</b>
Introduces students to the process of independent research through an in-depth examination of the Troubles in Northern Ireland.			
<b>5703</b>	<b>Thinking And Writing: A Practicum for Intelligence Analysis</b>	<b>U G</b>	<b>3</b>
Students will practice writing forms regularly used by the US intelligence community. Designed to provide high-level US policymakers with both raw information & detailed analysis on international events. Requires extensive research.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 18</b>
An opportunity for students to study at a foreign institution and receive OSU credit for work completed there. Students will pay OSU fees and any fees in excess of OSU tuition, as well as all travel and subsistence costs. Prereq: Permission of department chairperson. Repeatable.			
<b>5800</b>	<b>International Law</b>	<b>U G</b>	<b>3</b>
Examination of the varied sources, traditions, functions and structures of international law and its significance in maintaining stability, continuity and communication in the international system. Prereq: Soph standing or above, or permission of instructor. Not open to students with credit for 650.			
<b>5801</b>	<b>Children and War</b>	<b>U G</b>	<b>3</b>
Explores how children are affected by war, as forced participants, orphans and refugees. Long-term effects on society will be studied. Prereq: Soph standing or above, or permission of instructor. Not open to students with credit for 615.			

## Islamic Studies

<b>3201</b>	<b>Muslims in America and Europe: Migration and Living Between Worlds</b>	<b>U</b>	<b>3</b>
What does it mean to live as modern Muslims in western societies? How do they cope with prejudice, Islamophobia, traditions, integration, war, migration, and new opportunities? We explore the experiences of religious minorities in the U.S. and Europe for Muslims whose families are originally from the Arab world, Iran, South Asia, Turkey, Southeast Asia, and Central Asia. Prereq: Not open to students with credit for NELC 3201. GE soc sci indivs and groups and diversity soc div in the US course.			
<b>3205</b>	<b>Women in the Muslim Middle East</b>	<b>U</b>	<b>3</b>
Examination of the position on women in the contemporary Middle East; impact of regional environment on gender identity; gender bias studies in various Middle Eastern countries. Prereq: English 1100. Not open to students with credit for NELC 3205. GE cultures and ideas and diversity global studies course.			
<b>3230</b>	<b>Introduction to Shi'i Beliefs and History</b>	<b>U</b>	<b>3</b>
Introduction to the history, doctrinal tenets, and social manifestations of Shi'ism within Islam and in the context of Islamic civilization. Prereq: English 1110. Not open to students with credit for NELC 3230.			
<b>3355</b>	<b>The Early Islamic Conquests (CE 630-750)</b>	<b>U</b>	<b>3</b>
Utilizing new historical methods for reading and interpreting the sparse contemporary and near-contemporary testimonies for this historical period, this course explores how these testimonies, both Muslim and non-Muslim, continue to challenge historians to revise the history of the Islamic conquests. In this course a strong focus is placed on reading primary source materials in translation. Prereq: Not open to students with credit for History 3355. GE historical study and diversity global studies course. Cross-listed in History.			
<b>3501</b>	<b>Introduction to Islam</b>	<b>U</b>	<b>3</b>
Examination of Islam as a world religion, enabling an understanding of its major tenets and beliefs as they are envisioned by insiders and outsiders. Prereq: English 1110. Not open to students with credit for NELC 3501. GE cultures and ideas and diversity global studies course.			
<b>3502</b>	<b>Islamic Civilization Through the Ages</b>	<b>U</b>	<b>3</b>
Islamic civilization through the ages offers a panoramic view of the interrelated social, political, economic, religious and intellectual developments of regions of Africa and Asia where the religion of Islam has had significant historical impact. Prereq: Not open to students with credit for NELC 3502.			
<b>3508</b>	<b>Sufism</b>	<b>U</b>	<b>3</b>
Examination of the distinctively Islamic mystical and spiritual features of Sufism and the relevance of its historical and cultural context. Prereq: English 1110. Not open to students with credit for NELC 3508. GE cultures and ideas course.			

## 268 Islamic Studies

**3702 Literatures and Cultures of the Islamic World** U 3

A survey of the Islamic world by way of literature and culture.  
Prereq: English 1110. Not open to students with credit for NELC 3702. GE lit and diversity global studies course.

**4597 Islamic Revival and Social Justice: Utopian Ideals and Lived Realities** U 3

Examination of modern Islamic revival movements in selected contemporary Muslim-majority societies.  
Prereq: Sr standing, or permission of instructor. Not open to students with credit for NELC 4597. GE cross-disciplinary seminar course.

**4626 Introduction to the Arabic Qur'an** U 3

A linguistic, literary, and cultural analysis of selected chapters from the Qur'an.  
Prereq: Arabic 2104. Not open to students with credit for Arabic 4626.

**5701 The Qur'an in Translation** U G 3

An introduction, in English, to the literary, religious, and cultural implications of the fundamental book of Islam.  
Prereq: Not open to students with credit for Arabic 5701.

**5703 Common Heritage: Biblical Figures in the Qur'an** U G 3

Examining and comparing the images of important prophets in the Bible and the Qur'an.  
Prereq: Not open to students with credit for Arabic 5703. Repeatable to a maximum of 9 cr hrs.

### Italian

**1101.01 Italian I** U 4

Introduction to language and culture of the Italian speaking world with emphasis placed on the acquisition of basic communication skills in a cultural context. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with 2 or more years of high school Italian.  
Prereq: Not open to students with credit for 1101, 1101.02, 5101, or 101. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1101.02 Italian I Hybrid** U 4

Covers the same material presented in Italian 1101.01 but students attend class two days/week and complete the rest of their work on-line. This course is not for everyone. The successful student is organized, self-motivated, able to learn grammar concepts on his/her own, and is comfortable with technology. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with 2 or more years of high school Italian.  
Prereq: Not open to students with credit for 101, 1101, 1101.01 or 5101. This course is available for EM credit. GE for lang course.

**1101.03 Italian I Blended** U 4

Introduction to language and culture of the Italian speaking world with emphasis placed on the acquisition of basic communication skills in a cultural context. Students attend class three days/week and complete the equivalent of the work of one class period online. Not open to native speakers of this language.  
Prereq: Not open to students with credit for 1101.01, 1101.02, or 5101. This course is available for EM credit. GE for lang course.

**1101.71 Italian Distance Learning I** U 4

This online version of Italian 1101.01 is designed for development of listening, reading, speaking, writing skills and cultural competency. Taught in Italian. Note: Online courses are not for everyone; the successful student is organized, self-motivated, and comfortable with technology.  
Prereq: Not open to students with credit for 1101, 1101.01, 1101.02, 1101.03, 1101.61, or 5101. This course is available for EM credit. GE for lang course.

**1102.01 Italian II** U 4

Continued development of Italian language skills and cultural knowledge for effective communication, with emphasis on more advanced language structures, sustained interactions, reading, and writing. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1101, 1101.01, 1101.02, or 101. Not open to students with credit for 1102, 102, 1102.02, or 5101. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102.02 Italian II Hybrid** U 4

Covers the same material presented in Italian 1102.01 but students attend class two days/week and complete the rest of their work on-line. This course is not for everyone. The successful student is organized, self-motivated, able to learn grammar concepts on his/her own, and is comfortable with technology.  
Prereq: 1101, 1101.01, 1101.02, or 101. Not open to students with credit for 1102, 102, 1102.01, or 5101. This course is available for EM credit. GE for lang course.

**1102.03 Italian II Blended** U 4

Continued development of skills needed for independent use of Italian. Activities address topics of the contemporary Italian speaking world. Taught in Italian. Students attend class three days/week and complete one day of class work on-line. Not open to native speakers of this language.  
Prereq: 1101.01, 1101.02, 1101.03, 4 cr hrs of 1101.61, or 1101.71. Not open to students with credit for 1102.01, 1102.02, 4 cr hrs of 1102.61, 1102.71, or 5101. This course is available for EM credit. GE for lang course.

**1102.71 Italian Distance Learning II** U 4

This online version of Italian 1102.01 is designed for development of listening, reading, speaking, writing skills and cultural competency. Taught in Italian. Note: Online courses are not for everyone; the successful student is organized, self-motivated, and comfortable with technology.  
Prereq: 1101, 1101.01, 1101.02, 1101.03, 4 cr hrs of 1101.61, or 1101.71. Not open to students with credit for 1102, 1102.01, 1102.02, 1102.03, 1102.61, or 5101. This course is available for EM credit. GE for lang course.

**1103.01 Italian III** U 4

Continued development of skills needed for independent use of Italian. Activities address topics of the contemporary Italian speaking world. Taught in Italian. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1102 (102), 1102.01, or 1102.02. Not open to students with credit for 1103, 103, 1103.02, or 5101. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1103.02 Italian III Hybrid** U 4

Covers the same material presented in Italian 1103.01 but students attend class two days/week and complete the rest of their work on-line. This course is not for everyone. The successful student is organized, self-motivated, able to learn grammar concepts on his/her own, and is comfortable with technology. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1102, 1102.01, 1102.02, or 102. Not open to students with credit for 1103, 103, 1103.01, or 5101. This course is available for EM credit. GE for lang course.

**1103.03 Italian III Blended** U 4

Continued development of skills needed for independent use of Italian. Activities address topics of the contemporary Italian speaking world. Taught in Italian. Students attend class three days/week and complete one day of class work on-line. Not open to native speakers of this language.  
Prereq: 1102.01, 1102.02, 1102.03, 4 cr hrs of 1102.61, or 1102.71. Not open to students with credit for 1103.01, 1103.02, 4 cr hrs of 1103.61, 1103.71, or 5101. This course is available for EM credit. GE for lang course.

**1103.71 Italian Distance Learning III** U 4

This online version of Italian 1103.01 is designed for development of listening, reading, speaking, writing skills and cultural competency. Taught in Italian. Note: Online courses are not for everyone; the successful student is organized, self-motivated, and comfortable with technology.  
Prereq: 1102, 1102.01, 1102.02, 1102.03, 4 cr hrs of 1102.61, or 1102.71. Not open to students with credit for 1103, 1103.01, 1103.02, 1103.03, 1103.61, or 5101. This course is available for EM credit. GE for lang course.

**2051 Italian Journeys** U 3

Introduction to social-cultural trends in Italy as reflected in literary texts and other materials from the beginnings to the Renaissance. Taught in English.  
GE lit and diversity global studies course.

**2052 Fictions of Italy: Modern and Contemporary Literature and Society** U 3

Introduction to social-cultural trends in Italy as reflected in literary texts and other materials from the Renaissance to the present.  
Prereq: Not open to students with credit for 152. GE lit and diversity global studies course.

**2053 Introduction to Italian Cinema** U 3

Survey of the Italian cinema from the beginnings to today, with special emphasis on neorealism. Taught in English.  
Prereq: Not open to students with credit for 221. GE VPA and diversity global studies course.

**2054 Dante in Translation** U 3

Study of Dante's Divine Comedy with a focus on the Inferno. Students will explore the historical, religious, philosophical and literary world that the poem engages.  
Prereq: English 1110 (110, 110.01, 110.02, or 110.03). Not open to students with credit for 251. GE lit course.

**2055 Mafia Movies** U 3

Examines Italian and American mafia movies made from 1905 to the present day and traces the history of the Italian and Italian American Mafias. Taught in English.  
GE VPA course.

**2102 Contemporary Italian Society** U 3

Exploration of a variety of aspects of contemporary Italian society and culture while developing language skills. Special focus on reading skills. Not open to native speakers of Italian.  
Prereq: A grade of C- or above in 1103.01, 1103.02, 1103.03, 4 cr hrs of 1103.61, or 1103.71, 1104.30, or 5101; or permission of instructor.

**2193 Individual Studies** U 1 - 9

Individual studies.  
Prereq: Permission of department. Repeatable to a maximum of 9 cr hrs or 9 completions.

**2194 Group Studies** U 1 - 9

Group studies.  
Repeatable to a maximum of 9 cr hrs or 9 completions.

<b>3051</b>	<b>Italian Romances</b>	<b>U</b>	<b>3</b>
In this course, students will become familiar with the medieval foundations of the romance genre; analyze the figure of the knight errant who wanders far from the center of his or her culture; and investigate the abiding influence of romance storytelling on how stories are told and communities are represented in contemporary literature and film. Prereq: English 1110, or equiv. GE lit and diversity global studies course.			
<b>3102</b>	<b>Business Italian</b>	<b>U</b>	<b>3</b>
Four-skill study and practice of general business Italian; introduction to current Italian commerce, business practices, terminology, business-related communication skills. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Not open to students with credit for 206. FL Admis Cond course.			
<b>3103</b>	<b>Styles and Stylistics</b>	<b>U</b>	<b>3</b>
Development of writing skills in various contexts such as advertisements, poems, letters, film critiques and research papers. Not open to native speakers of Italian. Prereq: 2102, or permission of instructor. FL Admis Cond course.			
<b>3220</b>	<b>Italian Culture Through the Ages</b>	<b>U</b>	<b>3</b>
An overview of Italian cultural history from the Medieval period to today; develops language skills through discussion of readings and film. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Not open to students with credit for 420. FL Admis Cond course.			
<b>3221</b>	<b>Reading Italy: Italian Literature and Culture</b>	<b>U</b>	<b>3</b>
An exploration of the culture and history of different periods through selected works of Italian literature. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Repeatable to a maximum of 6 cr hrs. FL Admis Cond course.			
<b>3222</b>	<b>Modern Italian Media</b>	<b>U</b>	<b>3</b>
Development of language skills using Italian media sources such as soap operas, internet resources, films, newspapers/magazines, etc. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Repeatable to a maximum of 6 cr hrs. FL Admis Cond course.			
<b>3223</b>	<b>The Regions of Italy</b>	<b>U</b>	<b>3</b>
Development of language skills while studying the histories and cultures of a variety of regions of Italy. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Not open to students with credit for 425. Repeatable to a maximum of 6 cr hrs. FL Admis Cond course.			
<b>3224</b>	<b>Post-Unification Italy</b>	<b>U</b>	<b>3</b>
An exploration of the cultural history of Italy from unification to the present day. Develops language skills through discussing visual media, literature, pop culture. Not open to native speakers of Italian. Prereq: 2102 (202). FL Admis Cond course.			
<b>3330</b>	<b>The Italian Language through Time</b>	<b>U</b>	<b>3</b>
Development of language skills while studying the evolution of Italian from its Latin origins. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Not open to students with credit for 423. FL Admis Cond course.			
<b>3331</b>	<b>The Languages of Italy</b>	<b>U</b>	<b>3</b>
Development of language skills while studying the structures and uses of modern Italian and the languages spoken in Italy today. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. FL Admis Cond course.			
<b>3332</b>	<b>The Sounds of Italian</b>	<b>U</b>	<b>3</b>
An introduction to Italian phonetics and phonology. Special focus on pronunciation. Not open to native speakers of Italian. Prereq: 2102 (202), or permission of instructor. Not open to students with credit for 402.			
<b>3570</b>	<b>CLLC Radio</b>	<b>U</b>	<b>3</b>
Student partners prepare 3 target language broadcasts, each 1 hour in length. Broadcasts stream live over the Internet, then become podcast for public use. Student "DJs" conduct target language research on radio broadcast history and at least 15 thematic topics and related music that interests them. Students choose their music and content with approval and guidelines, then produce scripts. Prereq: Permission of instructor.			
<b>3797</b>	<b>Italy Abroad</b>	<b>U</b>	<b>1 - 9</b>
Study abroad experience focusing on one of a variety of topics, such as urban life and contemporary society for students with no background in Italian. Prereq: Not open to native speakers of Italian. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>3798.01</b>	<b>The Italian City</b>	<b>U</b>	<b>3</b>
Study of Italian society and culture from the Middle Ages to the present through the examination of the important cities that have shaped its history. GE cultures and ideas and diversity global studies course.			

<b>3798.02</b>	<b>Experience Italy</b>	<b>U</b>	<b>3 - 9</b>
Study abroad experience that is the continuation of any one of the following courses: 3320, 3321, 3323, 3324, 3331, 4423, 4424, 4425. Students must enroll in the course that accompanies this study abroad experience. Not open to native speakers of Italian. Prereq: 3320, 3321, 3323, 3324, 3331, 4423, 4424, or 4425. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>4191</b>	<b>Internship in Italy</b>	<b>U</b>	<b>3</b>
A professional and social experience in the target language. Students with intermediate/advanced language skills are placed with organizations where they will speak Italian in a professional environment. Prereq: 2102, CPHR 2.75 or above, and GPA 3.00 or above in Italian.			
<b>4223</b>	<b>Italian Cinema</b>	<b>U</b>	<b>3</b>
Examination of Italian cinema from Neorealism to the present. Discussion of contemporary society and culture with a brief introduction to film theory. Not open students who are native speakers of Italian. Prereq: One course at the 3000 (400) level or above, or permission of the instructor. Not open to students with credit for 613. FL Admis Cond course.			
<b>4224</b>	<b>Survey of Italian Literature</b>	<b>U</b>	<b>3</b>
Overview of selected works of Italian literature from the origins to today. Special focus on the cultural and historical contexts of the text studied. Not open to native speakers of Italian. Prereq: One course taken at the 3000 (or 400) level or above, or permission of instructor. Not open to students with credit for 614. FL Admis Cond course.			
<b>4225</b>	<b>Italian Identities</b>	<b>U</b>	<b>3</b>
Examination of the experiences and perspectives of Italians (including emigrants) through reading, film, and discussion. Topics could include popular culture, Italian Americans, and immigration in Italy. Not open to native speakers of Italian. Prereq: One course taken at the 3000 (400) level or above, or permission of instructor. Not open to students with credit for 615. FL Admis Cond course.			
<b>4226</b>	<b>Italian Theater Workshop</b>	<b>U</b>	<b>3</b>
The study, adaptation and presentation of a play in Italian. Not open to native speakers of Italian. Prereq: Two 3000 (400) level courses, or permission of instructor. Not open to students with credit for 450 or 3225. FL Admis Cond course.			
<b>4330</b>	<b>Structures of the Italian Language</b>	<b>U</b>	<b>3</b>
Introduction to the basic concepts of Italian linguistics; improve and refine understanding of grammar; focus on several advanced-level structures. Not open to native speakers of Italian. Prereq: One course taken at the 3000 (or 400) level or above, or permission of instructor. Not open to students with credit for 601. FL Admis Cond course.			
<b>4331</b>	<b>Italian Translating</b>	<b>U</b>	<b>3</b>
Translation from Italian to English and English to Italian of texts from diverse sources; analysis of prose styles and conventions in the two languages. Not open to native speakers of Italian. Prereq: One course taken at the 3000 (or 400) level, or permission of instructor. Not open to students with credit for 602.			
<b>4401</b>	<b>Language Planning and Policy in Italy Through Time</b>	<b>U</b>	<b>3</b>
Issues of language in Italy are complex and have varied significantly over time. In this course, we will examine and critique issues of language planning and policy in Italy at different points in history arriving at the unique issues in Italy today. The modern Italian situation will be compared to those of other countries. Taught in English. Prereq: Two 3000-level Italian or other world language courses taught in English or in the world language.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research or creative activities in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 3</b>
A program of individual study for undergraduate honors students; includes individual conferences and reports. Prereq: Honors standing, CPHR 3.5 or above in Italian, Sr standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>4999</b>	<b>Undergraduate Thesis</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate thesis. Topics vary. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>4999H</b>	<b>Honors Thesis</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate Honors Thesis. Topics vary. Prereq: Honors standing and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5101</b>	<b>Intensive Italian</b>	<b>U G</b>	<b>5</b>
Covers the same material in Italian 1101, 1102, and 1103 in one semester course. The course is necessarily fast-paced and ideal for students who find learning foreign languages fun and interesting. Previous foreign language study ideal but not required. Not open to native speakers of Italian. GE for lang course.			

## 270 Italian

<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 9</b>
Individual Studies Prereq: Permission of department. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 9</b>
Group studies. Prereq: Written permission of department. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>5331</b>	<b>History of the Italian Language</b>	<b>U G</b>	<b>3</b>
Introduction to basic concepts of historical linguistics; exploration of the major factors of change in the history of the Italian language. Prereq: Two Italian courses at the 3000-level or above; or Doctoral or MA Candidate; or qualified Undergraduates, and permission of instructor. Not open to students with credit for 711. FL Admis Cond course.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Repeatable to a maximum of 9 cr hrs or 9 completions. FL Admis Cond course.			
<b>6193</b>	<b>Graduate Independent Studies</b>	<b>G</b>	<b>1 - 15</b>
Graduate independent studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>6194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 15</b>
Graduate group studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Individual Studies. Prereq: MA and PhD candidates, qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>8194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 9</b>
Graduate group studies. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>8221</b>	<b>Studies in Italian Literature: Author</b>	<b>G</b>	<b>3</b>
Focus on one author from any time period. Prereq: Doctoral or MA candidates, or qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8222</b>	<b>Studies in Italian Literature: Genre</b>	<b>G</b>	<b>3</b>
Focus on one genre from one or several time periods. Prereq: Doctoral or MA candidates or, qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8223</b>	<b>Studies In Italian Literature: Theme</b>	<b>G</b>	<b>3</b>
Focus on one theme from one or several time periods. Prereq: Doctoral or MA candidates, or qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8231</b>	<b>Dante Studies</b>	<b>G</b>	<b>3</b>
Focus on variable selection of Dante's work, from early works to the Commedia, as well as cultural contexts. Attention also to the practice of Dante criticism. Prereq: Doctoral and MA candidates, and qualified undergraduates with permission of instructor. FL Admis Cond course.			
<b>8233</b>	<b>Boccaccio and the Art of the Short Story</b>	<b>G</b>	<b>3</b>
Intensive study of Boccaccio's Decameron with comparison to sources as well as later works such as The Canterbury Tales and The Heptameron. Prereq: Doctoral and MA candidate, or qualified undergraduates with permission of instructor. Not open to students with credit for 622. FL Admis Cond course.			
<b>8242</b>	<b>Studies in Italian Culture: Gender and Genre</b>	<b>G</b>	<b>3</b>
Examines representations of gender in film, literature, poetry or other media. May focus on one period/issue or address a center or longer time period. Prereq: Doctoral and MA candidates, or qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8243</b>	<b>Studies in Italian Cinema</b>	<b>G</b>	<b>3</b>
Detailed exploration and analysis of selected topics in Italian cinema. Prereq: Doctoral and MA Candidates or, qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8244</b>	<b>Studies in Italian Culture: Italy at War</b>	<b>G</b>	<b>3</b>
Detailed analysis of either filmic or literary representations of periods of strife in modern Italian culture. Prereq: Doctoral or MA candidates or, qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			

<b>8245</b>	<b>Italian Pop Culture</b>	<b>G</b>	<b>3</b>
Exploration of new media, popular television, film, music, literature or other visual or performing arts. Prereq: Doctoral or MA candidates, or qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8246</b>	<b>Studies in Italian Culture: Migrating Italy</b>	<b>G</b>	<b>3</b>
In-depth exploration of Italian literature, film and culture of immigration and emigration. Primary texts may include novels, travel logs/journals, films, documentaries, newspaper articles, and propaganda material. Prereq: Doctoral or MA candidates, or qualified undergraduates with permission of instructor. Repeatable to a maximum of 9 cr hrs. FL Admis Cond course.			
<b>8303</b>	<b>Teaching Apprenticeship</b>	<b>G</b>	<b>1 - 3</b>
Apprenticeship for advanced doctoral students to work with faculty members on the design and teaching of upper-level Italian language, literature, and culture courses. Prereq: Two years previous teaching experience, and permission of instructor and Graduate Studies chair. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>8881</b>	<b>Interdepartmental Studies in the Humanities</b>	<b>G</b>	<b>1 - 6</b>
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Repeatable with permission from the department . Prereq: Grad standing. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>8998</b>	<b>Pre-Candidacy Research</b>	<b>G</b>	<b>1 - 9</b>
Pre-candidacy research and examination preparation for advanced graduate students. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 9</b>
Research for dissertation. Prereq: Candidacy exams completed. Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.			

## Japanese

<b>1101.01</b>	<b>Level One Japanese I: Classroom Track</b>	<b>U</b>	<b>4</b>
Standard Japanese at the elementary level, with emphasis on building & applying basic language knowledge in doing things in Japanese; exercises in oral interactions & interactions involving text; introduction to the Japanese writing system. Not open to native speakers of this language through regular course enrollment or EM credits, or to students with 3 or more years of study in this language. Prereq: Not open to students with credit for 1101.02 (101.01) or 4 credits of 1101.51 (101.51). This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1101.02</b>	<b>Level One Japanese I: Summer Intensive Track</b>	<b>U</b>	<b>4</b>
Standard Japanese at the elementary level, with emphasis on knowledge in doing things in Japanese; intro to the writing system. Sum Intensive. Admission to SPEAC program is required, 4 cr hrs during the first 3.5 weeks of the Summer Session. Prereq: Application and admission to SPEAC program. Not open to students with credit for 1101.01 (101.01), 1101.51, or 102; or to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GE for lang.			
<b>1101.51</b>	<b>Level One Japanese I: Individualized Track</b>	<b>U</b>	<b>1 - 4</b>
Japanese at elem level, emphasis on building & applying basic lang knowledge in doing things in Japanese; exercises in oral interactions, involving text; intro to writing system. Progress is seq from 1 cr hr to next with prof at 80% req'd for advance. Prereq: Not open to students with credit for 1101.01 (101), 1101.02 (102), or 4 credits of 1101.51; or to native speakers of this language through regular course enrollment or EM credit, or to students with 3 or more years of study of this language in high school, except by permission of dept. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1102.01</b>	<b>Level One Japanese II: Classroom Track</b>	<b>U</b>	<b>4</b>
Continuation of Japanese 1101. Sp Sem. Prereq: 1101.01 or 1101.02 or 4 credits of 1101.51. Not open to students with credit for 1102.02 (102.02) or with 4 credits of 1102.51 (103.51); or to native speakers of this language through regular course enrollment or EM unit. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1102.02</b>	<b>Level One Japanese II: Summer Intensive Track</b>	<b>U</b>	<b>4</b>
Continuation of 1101.01, 1101.02, or 4 credits of 1101.51. Summer Intensive. Admission to SPEAC program is required for registration and complete 4 credits during the second 3.5 weeks of the Summer Session. Prereq: 1101.01 or 1101.02 or 4 cr hrs of 1101.51; application and admission to SPEAC program. Not open to students with credit for 1102.01 or 4 credits of 1102.51, 102.02, or 103.02; or to native speakers of this language through regular course enrollment or EM credit. GE for lang course. FL Admis Cond course.			



<b>1102.51</b>	<b>Level One Japanese II: Individualized Track</b>	<b>U</b>	<b>1 - 4</b>
Continuation of 1101.01, 1101.02, or 4 credits of 1101.51. Individualized. Students complete from 1 to 4 units during the semester. Progress is sequential from one unit to the next with proficiency at the level of 80% required for advancement. Prereq: 1101.01 or 1101.02 or 4 units of 1101.51. Advancement to the first credit in this course in the same semester as the completion of the 4th credit for 1101.51 requires registration for both courses, with permission of instructor. Not open to students with credit for 1101.01, 1101.02, or 4 credits of 1101.51, or 102.51, or 103.51; or to native speakers of this language through regular course enrollment or EM credits. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.01</b>	<b>Level Two Japanese I: Classroom Track</b>	<b>U</b>	<b>4</b>
Continuation of 1102.01, 1102.02, or 4 credits of 1101.51; expanding oral and written communicative strategy building. Students must complete 4 units during the semester. Not open to native speakers of this language through regular course enrollment or EM credit. Au Sem. Prereq: 1102.01, 1102.02, or 4 units of 1102.51. Not open to students with credit for 1103, 4 credit of 1103.51, or 104. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103.02</b>	<b>Level Two Japanese I: Summer Intensive Track</b>	<b>U</b>	<b>4</b>
Continuation of 1102.01, 1102.02, or 4 credits of 1102.51, and expanding oral and written communication. Intensive. Students must complete 4 cr hrs during the first 3.5 weeks of the Summer Session. Not open to native speakers of this language through regular course enrollment or EM credit. Su Sem. Prereq: 1102.01 or 1102.02, or 4 sem cr hrs of 1102.51; and application and admission to SPEAC program. Not open to students with credit for 1103, 4 sem cr hrs of 1103.51, or 104. GE for lang course. FL Admis Cond course.			
<b>1103.51</b>	<b>Level Two Japanese I: Individualized Track</b>	<b>U</b>	<b>1 - 4</b>
Continuation of 1102.01, 1102.02, or 4 credits of 1102.51. Individualized. Students complete from 1 to 4 units during the semester. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1102.01 or 1102.02, or 4 units of 1102.51. Advancement to the first credit in this course in the same semester as the completion of the 4th credit for 1102.51 requires registration for both courses, with permission of instructor. Not open to students with credit for 1103, 4 sem cr hrs of 1103.51, or 104. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>2102.01</b>	<b>Level Two Japanese II: Classroom Track</b>	<b>U</b>	<b>5</b>
Continuation of 1103.01, 1103.02, or 4 credits of 1103.51. Expanding oral and written communication strategies. Students must complete 5 units during the semester. Sp Sem. Prereq: 1103.01 or 1103.02, or 4 units of 1103.51. Not open to students with credit for 2102.02, 205, or 206; or to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. FL Admis Cond course.			
<b>2102.02</b>	<b>Level Two Japanese II: Summer Intensive Track</b>	<b>U</b>	<b>5</b>
Continuation of 1103.01, 1103.02, or 4 credits of 1103.51, expanding oral and written communication. Intensive. Students must register for the course at the beginning of the term and complete 5 cr hrs during the second 3.5 weeks of the term Su Sem. Prereq: Japanese 1103.01, 1103.02, or 4 cr hrs of 1103.51, or equiv, and application and admission to SPEAC program; or permission of instructor. FL Admis Cond course.			
<b>2141</b>	<b>Intensive Level Two Japanese-Oral</b>	<b>U</b>	<b>4</b>
First course in the sequence of academic-year intensive Japanese courses; organized around a set of videotaped core conversations. Au Sem. Prereq: 1102.01 or equivalent, and permission of instructor. Concur: 2151. Not open to students with credit for 1103, 2102, or 210. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>2151</b>	<b>Intensive Level Two Japanese-Written</b>	<b>U</b>	<b>5</b>
Second course in the sequence of academic year intensive Japanese courses; organized around reading Japanese and a series of genre-specific samples of Japanese as it is written today. Au Sem. Prereq: 1102.01 or equivalent, and permission of instructor. Concur: 2141. Not open to students with credit for 1103, 2102, or 211. This course is available for EM credit. FL Admis Cond course.			
<b>2231</b>	<b>Elements of Japanese Culture</b>	<b>U</b>	<b>3</b>
A survey of literature, art, religion, philosophy, film, and social institutions of the Japanese people from the earliest to the most recent times. Taught in English. Prereq: Not open to students with credit for 231. GE cultures and ideas and diversity global studies course.			
<b>2255</b>	<b>Postwar Culture in Germany and Japan</b>	<b>U</b>	<b>3</b>
This course will examine postwar culture in Germany and Japan, looking at films, theoretical texts, memoirs, manifestos, and literary works, subjecting our material to cross-cultural analysis that should deepen as our basis for comparison expands. Team-taught with faculty in German. Prereq: Not open to students with credit for German 2255. Cross-listed in German. GE cultures and ideas course.			
<b>2451</b>	<b>Japanese Literature in Translation</b>	<b>U</b>	<b>3</b>
Representative masterpieces from Japan's literary tradition: fiction, poetry, drama, prose. Taught in English. Prereq: Not open to students with credit for 251. GE lit and diversity global studies course.			

<b>2452</b>	<b>Modern Japanese Literature in Translation</b>	<b>U</b>	<b>3</b>
Modern Japanese literature and media from late 19th century Western influences to contemporary writers; selected readings in English translation. Prereq: Not open to students with credit for 252. GE lit and diversity global studies course.			
<b>4101</b>	<b>Level Three Japanese I</b>	<b>U</b>	<b>5</b>
Expansion of strategies for communication through oral and textual media. Au Sem. Prereq: 2102.01 or 2102.02, or equivalent with permission of instructor. Not open to students with credit for 507 or 508. This course is available for EM credit. FL Admis Cond course.			
<b>4102</b>	<b>Level Three Japanese II</b>	<b>U</b>	<b>5</b>
Continuation of 4101; supplementary readings in short stories and standard reference works. Sp Sem. Prereq: 4101, or equivalent with permission of instructor. Not open to students with credit for 508 or 509. This course is available for EM credit. FL Admis Cond course.			
<b>4142</b>	<b>Intensive Level Three Japanese-Oral</b>	<b>U</b>	<b>5</b>
Third course in the sequence of academic-year intermediate intensive Japanese courses; organized around a set of videotaped core conversations. Sp Sem. Prereq: 1102.01, and permission of instructor; or 2141 with 2151 and permission of instructor. Concur: 4152. Not open to students with credit for 2102.01, 310, or 510. This course is available for EM credit. FL Admis Cond course.			
<b>4152</b>	<b>Intensive Level Three Japanese-Written</b>	<b>U</b>	<b>5</b>
Fourth course in the sequence of academic-year intensive Japanese courses; organized around reading a set of genre-specific samples of Japanese as it is written today; integrated with 4142 in structure and vocabulary. Au Sem. Prereq: 2101, and permission of instructor; or 2141 with 2151 and permission of instructor. Concur: 4142. Not open to students with credit for 4102, 311, or 511. This course is available for EM credit. FL Admis Cond course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Directed study to meet individual research needs of students in Japanese studies. Not a substitute for regular language courses. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group investigation of issues in Japanese studies. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4400</b>	<b>Japanese Film and Visual Media</b>	<b>U</b>	<b>3</b>
An overview of Japanese cinema and visual media, with a focus on genre: canonical and popular works of anime, yakuza film, historical/samurai film, comedies, and documentaries. Taught in English, no Japanese required.			
<b>4401</b>	<b>Japanese Literature and Film in Critical Perspective</b>	<b>U</b>	<b>3</b>
Survey in translation of canonical works of Japanese literature and film and introduction to methods for the critical evaluation of the Japanese literary tradition. Prereq: 2451 or 2452, or equivalent; or permission of instructor. Not open to students with credit for 501.			
<b>4998</b>	<b>Undergraduate Research Project</b>	<b>U</b>	<b>3</b>
Focused research toward completion of an original project. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research Project</b>	<b>U</b>	<b>3</b>
Focused research toward completion of an original project. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>2 - 4</b>
Focused research toward completion of an original thesis. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>2 - 4</b>
Focused research toward completion of an original thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 2 completions. This course is graded S/U.			
<b>5101.01</b>	<b>Level Four Japanese I: Classroom Track</b>	<b>U G</b>	<b>3</b>
Continuation of 4102.01 or 4142/4152 with an increasing emphasis on presentation mode of communication. Students must complete 3 units during the semester. Au Sem. Prereq: 4102 or 4142/4152. Not open to students with credit for 5101.02, or 611.01 and 610. FL Admis Cond course.			
<b>5101.02</b>	<b>Level Four Japanese I: Summer Intensive Track</b>	<b>U G</b>	<b>3</b>
Continuation 4102.01 or 4142/4152; expansion of communicative strategies with increased emphasis on presentational mode of communication. Readings in various genres. Sum. Intensive. Must complete 3 credits during the first 3.5 weeks of the term. Prereq: 4102, or 4142 and 4152; or permission of instructor, and application and admission to SPEAC program. Not open to students with credit for 5101.01, 610.02, or 611.02. FL Admis Cond course.			

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<b>5102.01</b>	<b>Level Four Japanese II: Classroom Track</b>	<b>U G</b>	<b>3</b>
Continuation of 5101.01 or 5101.02. Students must complete 3 units during the semester. Sp Sem. Prereq: 5101.01 or 5101.02. Not open to students with credit for 5102.02, 611.01, or 612.01. FL Admis Cond course.			
<b>5102.02</b>	<b>Level Four Japanese II: Summer Intensive Track</b>	<b>U G</b>	<b>3</b>
Continuation of 5101.01 or 5101.02. Sum. Intensive. Students must register for the course at the beginning of the term and complete 3 credits during the second 3.5 weeks of the term. Prereq: 5101.01, 5101.02, or permission of instructor; application and admission to SPEAC program. Not open to students with credit for 5102.01, 611.02, or 612.02. FL Admis Cond course.			
<b>5103.51</b>	<b>Level Five Japanese I: Individualized Track</b>	<b>U G</b>	<b>1 - 3</b>
Continuation of 5102.01 or 5102.02, with an increasing emphasis on presentation mode of communication. Individualized Track. Students complete from 1 to 3 units during the semester. Au Sem. Prereq: 5102.01 or 5101.02. Not open to students with 9 or hrs of 5103.51, or 710.51 and 711.51. Repeatable to a maximum of 9 cr hrs or 4 completions. This course is available for EM credit.			
<b>5104.51</b>	<b>Level Five Japanese II: Individualized Track</b>	<b>U G</b>	<b>1 - 3</b>
Continuation of 5103.51. Individualized. Students must complete from 1 to 3 units during the semester. Sp Sem. Prereq: 5102.01 or 5102.02. Not open to students with 9 cr hrs of 5104.51, or 711.51 and 712.51. Repeatable to a maximum of 9 cr hrs or 4 completions. This course is available for EM credit. FL Admis Cond course.			
<b>5111</b>	<b>Classical Japanese I</b>	<b>U G</b>	<b>3</b>
Develops familiarity with traditional Japanese and Western grammatical concepts, categories, functions, and reference tools for reading early Japanese, in close reading of selected primary texts and linguistic analysis. Prereq: 4102, 4152 or equivalent; or permission of instructor. Not open to students with credit for 601. FL Admis Cond course.			
<b>5112</b>	<b>Classical Japanese II</b>	<b>U G</b>	<b>3</b>
Advanced readings of premodern Japanese texts with attention to various problems of language history and literary genres. Prereq: 5111, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5121</b>	<b>Kanbun</b>	<b>U G</b>	<b>3</b>
Introduces the basics of grammar of classical Japanese kanbun texts. Prereq: 5111 and 5112.			
<b>5194</b>	<b>Und/Grad Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group investigation of issues in Japanese studies designed for a mix of undergraduate and graduate students. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>5271</b>	<b>The Japanese Religious Tradition</b>	<b>U G</b>	<b>3</b>
A survey of the Japanese religious tradition, including Shinto, Buddhism, Taoism, Neo-Confucianism, and folk religion from the 6th century B.C.E. to the present. Prereq: Not open to students with credit for 641, CompStd 5871 (641) or RelStds 5871. Cross-listed in RelStds 5871.			
<b>5315</b>	<b>Japanese Language: Structure, Culture, and Communication I</b>	<b>U G</b>	<b>3</b>
Critical and comprehensive survey of structural, cultural, and communicative aspects of the Japanese language. Taught in English. Prereq: 1101.01, 1101.02, or 4 units of 1101.51. Not open to students with credit for 515.			
<b>5316</b>	<b>Japanese Language: Structure, Culture, and Communication II</b>	<b>U G</b>	<b>3</b>
Critical and comprehensive survey of structural, cultural, and communicative aspects of the Japanese language. Prereq: 1103, 5315, or permission of instructor. Not open to students with credit for 516.			
<b>5380</b>	<b>Japanese Linguistics</b>	<b>U G</b>	<b>3</b>
Examination of the phonology, syntax, and lexicon of the Japanese language. Prereq: Permission of instructor. Not open to students with credit for 680.			
<b>5400</b>	<b>Performance Traditions of Japan</b>	<b>U G</b>	<b>3</b>
Introduction to performance traditions of Japan; explores selected performing arts in their cultural contexts and examines patterns of emergence in modern times. Prereq: 2231, 2451, or 2452; or Chinese 2231 or 2451; or Korean 2231 or 2451; or EALL 1231; or permission of instructor. Not open to students with credit for 600.			
<b>5454</b>	<b>Japanese Literature: Classical Period</b>	<b>U G</b>	<b>3</b>
Survey of Japanese literature from the eighth to the twelfth century: myths, court poetry, tales, fiction, diaries, and miscellanies. Prereq: 2231, 2451, 2452, or another Japanese literature course at the 2000 level or above; or permission of the instructor. Not open to students with credit for 654.			
<b>5455</b>	<b>Japanese Literature: Medieval and Edo Periods</b>	<b>U G</b>	<b>3</b>
Survey of Japanese literature from the thirteenth to the early nineteenth century: popular tales, poetry, drama, and the fiction of the merchant class. Prereq: 2231, 2451, 2452, or another Japanese literature course at the 2000 level or above, or permission of instructor. Not open to students with credit for 655.			

<b>5798.02</b>	<b>Study Tour: Foreign</b>	<b>U G</b>	<b>8 - 21</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Repeatable for different titled study tours only. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 3 completions.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Requires the use of Japanese sources and the completion of a paper reflecting the student's research. Not a substitute for regular language courses. Prereq: 4102 or 5112, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Group investigation of issues in Japanese studies. Varying topics. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>6998</b>	<b>Research in Japanese: Project</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of a project other than a conventional MA thesis. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>6999</b>	<b>Research in Japanese: Thesis</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of an MA thesis. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>7384</b>	<b>Japanese Syntax</b>	<b>G</b>	<b>3</b>
Discussion of the grammatical structures of Japanese; presentation of syntactic rules. Prereq: 6380. Not open to students with credit for 784.			
<b>7386</b>	<b>Japanese Pragmatics</b>	<b>G</b>	<b>3</b>
Discussion of pragmatic aspects of the Japanese language. Prereq: 6380, or permission of instructor. Not open to students with credit for 786.			
<b>7387</b>	<b>Japanese Language Processing</b>	<b>G</b>	<b>3</b>
Discussion of various studies on and approaches to Japanese first and second language processing. Prereq: 6380, or permission of instructor. Not open to students with credit for 787.			
<b>7388</b>	<b>Japanese Language Acquisition</b>	<b>G</b>	<b>3</b>
Discussion of Japanese language acquisition studies. Prereq: 6380, or permission of instructor. Not open to students with credit for 788.			
<b>7453</b>	<b>Studies in Japanese Drama</b>	<b>G</b>	<b>3</b>
History and texts of Japan's dramatic literature; noh, kyogen, bunraku, kabuki, shingeki; topic varies. Prereq: 5111 or 5112; 5454, 5455, or 5456; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8387</b>	<b>Topics and Problems in Japanese Linguistics</b>	<b>G</b>	<b>3</b>
A detailed investigation of specific problems in the phonological, syntactical, and/or lexical analysis of the Japanese language. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>8500</b>	<b>Japanese Bibliography and Research Methods</b>	<b>G</b>	<b>3</b>
Problems and procedures in the use of Japanese bibliographies and other reference materials, including electronic sources. Prereq: 5102.1 or equivalent; or permission of instructor. Not open to students with credit for 800.			
<b>8897</b>	<b>Departmental Seminar</b>	<b>G</b>	<b>1 - 3</b>
Seminar in Japanese literature, linguistics, or pedagogy; topic varies. Prereq: 5111 or 5112; or 5454, 5455, or 5456; or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>8998</b>	<b>Research in Japanese: Project</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of a project other than a conventional dissertation. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Japanese: Dissertation</b>	<b>G</b>	<b>1 - 3</b>
Research leading to the completion of a dissertation. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 7 completions. This course is graded S/U.			

## Jewish Studies

<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
An investigation of a particular topic in Jewish Studies through readings, discussion and scheduled class meetings. The topic will vary from semester to semester and is based on emerging interests of students and faculty in Jewish Studies. Prereq: Permission of instructor.			
<b>2201</b>	<b>Introduction to Jewish Culture, Thought, and Practice</b>	<b>U</b>	<b>3</b>
An introduction to the historical, ideological, and cultural growth of Judaism examined from a variety of methodological perspectives. Prereq: Not open to students with credit for 201. GE cultures and ideas and diversity global studies course.			

<b>2241</b>	<b>Yiddish Culture</b>	<b>U</b>	<b>3</b>
Introductory survey of political, social, ideological, and religious trends as reflected in Yiddish culture, especially folklore and literature. Prereq: Not open to students with credit for Yiddish 2241 (241). GE cultures and ideas and diversity global studies course. Cross-listed in Yiddish.			
<b>2242</b>	<b>Culture of Contemporary Israel</b>	<b>U</b>	<b>3</b>
An introduction to the Culture of modern Israel: historical roots, socio-political institutions and developments, and literary and artistic creations reflecting the realities of contemporary Israeli society. Prereq: Not open to students with credit for 2242H, Hebrew 2241 (241), or 2241H (241H). GE cultures and ideas and diversity global studies course. Cross-listed in Hebrew 2241.			
<b>2242H</b>	<b>Culture of Contemporary Israel</b>	<b>U</b>	<b>3</b>
An introduction to the culture of modern Israel: historical roots, socio-political institutions and developments, and literary and artistic creations reflecting the realities of contemporary Israeli society. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2242, Hebrew 2241 (241), or 2241H (241H). GE cultures and ideas and diversity global studies course. Cross-listed in Hebrew 2241H.			
<b>2367</b>	<b>Jewish-American Voices in U.S. Literature</b>	<b>U</b>	<b>3</b>
Introduction to Jewish-American literature; development of expository writing and argumentation skills through systematic and critical reflection upon their own country from the perspective of an ethnic community. Prereq: English 1110 (110) or equiv. Not open to students with credit for Yiddish 2367 (367). GE writing and comm course: level 2 and cultures and ideas course. Cross-listed in Yiddish.			
<b>2450</b>	<b>Ancient and Medieval Jewish History, 300 BCE-1100 CE</b>	<b>U</b>	<b>3</b>
Introduction to the history of Jewish communities, religion, and culture in the Near East from the Greco-Roman period to the First Crusade. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2450 (330.01). GE cultures and ideas and historical study and diversity global studies course. Cross-listed in History.			
<b>2451</b>	<b>Medieval and Early Modern Jewish History, 700-1700 CE</b>	<b>U</b>	<b>3</b>
Introduction to the history of Jewish communities, religion, and culture in Europe during the Medieval and Early Modern periods. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2451 (330.01 and 330.02). GE historical study course. Cross-listed in History.			
<b>2452</b>	<b>Modern Jewish History 1700 - Present</b>	<b>U</b>	<b>3</b>
Study of the history of Jewish communities and Judaism from the early modern period to the early 21st century. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2452 (330.02). GE historical study course. Cross-listed in History.			
<b>2453</b>	<b>History of Zionism and Modern Israel</b>	<b>U</b>	<b>3</b>
The history of Zionist movement and the modern state of Israel from beginnings to present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2453 (334). GE historical study course. Cross-listed in History.			
<b>2454</b>	<b>History of Anti-Semitism</b>	<b>U</b>	<b>3</b>
Study of the development of anti-Semitism, the history of anti-Semitic ideologies and practices, and different Jewish responses to anti-Semitism over time. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2454 (333). GE historical study course. Cross-listed in History.			
<b>2455</b>	<b>Jews in American Film</b>	<b>U</b>	<b>3</b>
A study of how modern Jews appear in film compared with historical reality. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2455 (332). GE historical study course. Cross-listed in History.			
<b>2475</b>	<b>History of the Holocaust</b>	<b>U</b>	<b>3</b>
Study of the state-sponsored murder of millions of Jews and non-Jews by the Nazis and their collaborators during World War II. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2475. GE historical study course. Cross-listed in History.			
<b>2516</b>	<b>The Medieval Jewish Experience</b>	<b>U</b>	<b>3</b>
A survey of ten centuries of medieval Jewish culture from the rise of Islam to the death of Shabbetai Zvi, the false Messiah (1676). Prereq: Not open to students with credit for MedRen 2516 (Medieval 216) or Hebrew 2216 (216). GE cultures and ideas and diversity global studies course. Cross-listed in MedRen 2516 and Hebrew 2216.			
<b>2700</b>	<b>The Hebrew Bible in Translation</b>	<b>U</b>	<b>3</b>
Reading and analysis of selected chapters from the Hebrew scriptures and post-biblical Hebrew writings representative of major historical, cultural, and literary trends. Prereq: English 1110. Not open to students with credit for 2700H, Hebrew 2700, or 2700H. GE lit and diversity global studies course. Cross-listed in Hebrew.			

<b>2700H</b>	<b>The Hebrew Bible in Translation</b>	<b>U</b>	<b>3</b>
Reading and analysis of selected chapters from the Hebrew scriptures and post-biblical Hebrew writings representative of major historical, cultural, and literary trends. Prereq: Honors standing, and English 1110; or permission of instructor. Not open to students with credit for 2700, Hebrew 2700, or 2700H. GE lit and diversity global studies course. Cross-listed in Hebrew.			
<b>2702</b>	<b>Modern Hebrew Literature in Translation</b>	<b>U</b>	<b>3</b>
A survey of major themes and topics in Modern Hebrew literature from the middle of the 19th century to the present. Prereq: English 1110 (110). Not open to students with credit for 2702H, Hebrew 2702 (372), or 2702H (372H). GE lit and diversity global studies course. Cross-listed in Hebrew.			
<b>2702H</b>	<b>Modern Hebrew Literature in Translation</b>	<b>U</b>	<b>3</b>
A survey of major themes and topics in Modern Hebrew literature from the middle of the 19th century to the present. Prereq: Honors standing, and English 1110 (110); or permission of instructor. Not open to students with credit for JewshSt 2702, Hebrew 2702 (372), or 2702H (372H). GE lit and diversity global studies course. Cross-listed in Hebrew.			
<b>3111</b>	<b>Introduction to Jewish Philosophy</b>	<b>U</b>	<b>3</b>
A general introduction to major figures and trends in medieval, modern, and contemporary Jewish philosophy; emphasis on Philo, Saadia, Maimonides, Spinoza, Mendelssohn, and Buber. Prereq: Not open to students with credit for Philos 3111 (321). GE cultures and ideas course. Cross-listed in Philos.			
<b>3205</b>	<b>Art and Judaism</b>	<b>U</b>	<b>3</b>
An exploration of the nature and function of art in Judaism from the standpoints of history, cultural history, and material culture. Prereq: English 1110. Not open to students with credit for 2205, Hebrew 2205, or 3205. GE VPA course.			
<b>3210</b>	<b>Kabbalah and the Jewish Mystical Tradition</b>	<b>U</b>	<b>3</b>
The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience. Prereq: English 1110. Not open to students with credit for 2210, 2210H, 3210H, CompStd 2210, 2210H, Hebrew 2210, 3210, 2210H, 3210H, RelSids 2210, 3210, 2210H, or 3210H. GE cultures and ideas and diversity global studies course. Cross-listed in Hebrew and RelSids.			
<b>3210H</b>	<b>Kabbalah and the Jewish Mystical Tradition</b>	<b>U</b>	<b>3</b>
The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience. Prereq: Honors standing, and English 1110. Not open to students with credit for 2210, 3210, 2210H, CompStd 2210, 2210H, Hebrew 2210, 3210, 2210H, 3210H, RelSids 2210, 3210, 2210H, or 3210H. GE cultures and ideas and diversity global studies course. Cross-listed in Hebrew and RelSids.			
<b>3245</b>	<b>Israeli Film &amp; Society</b>	<b>U</b>	<b>3</b>
A survey of Israeli films from 1948 to the present day, tracing the development of film production in Israel as well as the relationship between film and society. Prereq: English 1110. Not open to students with credit for 2245 or Hebrew 2245 or 3245. GE VPA and diversity global studies course. Cross-listed in Hebrew.			
<b>3371</b>	<b>Yiddish Literature in Translation</b>	<b>U</b>	<b>3</b>
Reading, analysis, and discussion of representative works and of the development of major movements and genres in Yiddish literature. Prereq: Not open to students with credit for Yiddish 3371 (371). GE lit and diversity global studies. Cross-listed in Yiddish.			
<b>3450</b>	<b>History of Ancient Israel (to 300 BCE)</b>	<b>U</b>	<b>3</b>
Survey of the history and historiography of Israel from its origins to the advent of Hellenism. Prereq: English 1110.xx, and any History 2000-level course; or permission of instructor. Not open to students with credit for History 3450 (530.01). GE historical study course. Cross-listed in History.			
<b>3455</b>	<b>Jewish Life from the Renaissance to the Early Enlightenment</b>	<b>U</b>	<b>3</b>
Life and thought of European and Mediterranean Jews in the early modern period. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 3455. GE historical study course. Cross-listed in History.			
<b>3465</b>	<b>American Jewish History</b>	<b>U</b>	<b>3</b>
Study of topics in American Jewish history from the colonial era to the present. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 3465. GE historical study course. Cross-listed in History.			
<b>3470</b>	<b>Messiahs and Messianism in Jewish History</b>	<b>U</b>	<b>3</b>
The history of Jewish messianic ideas and of Jewish messianic leadership from ancient to modern times. Prereq: English 1110.xx, and any History 2000-level course; or permission of instructor. Not open to students with credit for History 3470 (531.01). GE historical study course. Cross-listed in History			

## 274 Jewish Studies

<b>3505</b>	<b>U.S. Diplomacy in the Middle East</b>	<b>U</b>	<b>3</b>
Survey of U.S. foreign policy in the Middle East emphasizing the Cold War, Arab-Israeli conflict, Iran, and wars against Iraq. Sometimes this course is offered in a distance-only format. Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 3505. GE historical study and diversity global studies course. Cross-listed in History.			
<b>3703</b>	<b>Prophecy in the Hebrew Bible</b>	<b>U</b>	<b>3</b>
An intensive investigation into the dynamics of Israelite prophecy and apocalyptic in the context of ancient Near Eastern culture. Prereq: English 1110. Not open to students with credit for 2703, Hebrew 2703, or 3703. GE lit and diversity global studies course. Cross-listed in Hebrew.			
<b>3704</b>	<b>Women in the Bible and Beyond</b>	<b>U</b>	<b>3</b>
An examination of the social, legal, and religious position of women as they appear in the Hebrew Bible and the ways in which they have been represented and interpreted in later textual, visual, and audio sources. Prereq: English 1110. Not open to students with credit for 2704, Hebrew 2704, or 3704. GE lit and diversity global studies. Cross-listed in Hebrew.			
<b>3708</b>	<b>Wisdom Literature in the Bible</b>	<b>U</b>	<b>3</b>
An examination of the various ideas, themes, attitudes, implications, and genres of biblical and post-biblical wisdom literature. Prereq: English 1110. Not open to students with credit for 2708, Hebrew 2708, or 3708. GE lit and diversity global studies. Cross-listed in Hebrew.			
<b>4191</b>	<b>Jewish Studies Internship</b>	<b>U</b>	<b>1 - 3</b>
Community work with agencies and organizations serving the Jewish population. Evaluation of policy decisions from a Jewish perspective. Prereq: 2201, and 9 sem cr hrs in JewshSt; or permission of instructor. Repeatable to a maximum of 3 cr hrs or 2 completions. This course is graded S/U.			
<b>4798.02</b>	<b>History and Culture of Israel: Study Tour</b>	<b>U</b>	<b>3</b>
Introduces the dynamics of the current Middle East peace process against the backdrop of the richness and diversity of contemporary Israeli society and culture. Students will read material pertaining to the Middle East peace process, attend and participate in lectures/discussions with instructors during May semester, and take part in a study tour of Israel through OSU OIA. GE education abroad course.			
<b>4999H</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
A program of readings and empirical investigation of topics arranged on the basis of individual student interests. The course will entail individual conferences with faculty, reports, and honors thesis. An advanced independent study option. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
An investigation of a particular topic in Jewish Studies through readings, discussion and scheduled class meetings. The topic will vary from semester to semester and is based on emerging interests of students and faculty in Jewish Studies. Prereq: 2201 or 2194, or permission of instructor. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State University Fees and any fees in excess of Ohio State tuition as well as all travel and subsistence costs. Prereq: Written Permission of Melton Center Director. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is progress graded (S/U).			

## Kinesiology

<b>1263</b>	<b>Special Issues Affecting Contemporary Student-Athletes</b>	<b>U</b>	<b>3</b>
An exploration of current topics and problems concerning collegiate athletes and the decision-making skills needed to facilitate college adjustment. Prereq: Fresh or Soph standing, or permission of instructor. Not open to students with credit for EduPAES 263. This course is graded S/U.			
<b>2221.01</b>	<b>Sports Officiating: Baseball</b>	<b>U</b>	<b>1</b>
Study of playing rules, rule interpretation, techniques, and mechanics of officiating interscholastic and intercollegiate baseball. Satisfactory evidence of playing skill in the elected athletic sport. Prereq: Not open to students with credit for EduPAES 221.01.			
<b>2221.02</b>	<b>Sport Officiating: Basketball</b>	<b>U</b>	<b>1</b>
Study of playing rules, rule interpretation, techniques, and mechanics of officiating interscholastic and intercollegiate basketball. Satisfactory evidence of playing skill in the elected athletic sport is required. Prereq: Not open to students with credit for EduPAES 221.02.			
<b>3315</b>	<b>Positive Transitions for Intercollegiate Student-Athletes</b>	<b>U</b>	<b>2</b>
Addresses transitional issues unique to intercollegiate student-athletes. Students will learn appropriate developmental "Life Skills" needed to facilitate their personal and career adjustment. Prereq: Jr or Sr standing; or instructor permission. Not open to students with credit for EduPAES 315. This course is graded S/U.			

<b>4998</b>	<b>Research: Kinesiology</b>	<b>U</b>	<b>1 - 12</b>
Independent study related to research in Kinesiology: Health and Exercise Science, Physical Education, or Sport Industry. Prereq: Open only to Kinesio majors, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>4998H</b>	<b>Research: Honors in Kinesiology</b>	<b>U</b>	<b>2 - 3</b>
A program of accelerated study for students with special aptitudes. Prereq: Honors standing and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies: Kinesiology</b>	<b>U G</b>	<b>1 - 15</b>
Special Topics related to issues in Kinesiology. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>6891</b>	<b>Kinesiology Graduate Core Course I</b>	<b>G</b>	<b>3</b>
Introduction to graduate study in Kinesiology with an emphasis on becoming a successful doctoral student and scholar. Prereq: Grad standing in Kinesiology, or permission of instructor.			
<b>6892</b>	<b>Kinesiology Graduate Core Course II</b>	<b>G</b>	<b>3</b>
Advanced graduate study in Kinesiology including writing the thesis or dissertation. Prereq: Doct standing in Kinesiology, or enrollment in MS, or permission of instructor.			
<b>7730</b>	<b>Endocrinology</b>	<b>G</b>	<b>4</b>
Functional principles of the major endocrine systems in vertebrates and preparation for research in this area. Prereq: Biochem 4511 (511), or permission of instructor. Not open to students with credit for VetBios 730. Cross-listed in AnimSci.			
<b>7999</b>	<b>Research: Thesis</b>	<b>G</b>	<b>1 - 6</b>
Provides graduate students with the opportunity to develop and conduct basic and applied kinesiology research required for the completion of a thesis. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>8189</b>	<b>Practicum in Kinesiology</b>	<b>G</b>	<b>1 - 6</b>
Practicum study hours in Kinesiology. Prereq: Admission to Kinesiology graduate program, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			

## Kinesiology: Health and Exercise Science

<b>2360</b>	<b>Introduction to Exercise Science</b>	<b>U</b>	<b>3</b>
An exposure to the wide-range of topics that comprise the exercise science discipline.			
<b>2990</b>	<b>Movement is Medicine: Your Rx to Health</b>	<b>U</b>	<b>3</b>
This course provides an introduction to the powerful and widespread impact of exercise on human health. The design of the course examines the "why, what and how" of exercise and includes a practical and personalized application of the material.			
<b>3193</b>	<b>Independent Study: Health and Exercise Science</b>	<b>U</b>	<b>1 - 12</b>
Independent study in Health and Exercise Science. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>3414</b>	<b>Physiological Systems in Human Performance</b>	<b>U</b>	<b>3</b>
This course will examine the primary human physiological systems, their functions and their responses to acute and chronic exercise stimuli. Prereq: Admission to Exercise Science or Health Promotion, Nutrition, and Exercise Science major. Prereq or concur: Physio 3200 or EEOB 2520.			
<b>3415</b>	<b>Applied Physiology in Human Performance</b>	<b>U</b>	<b>3</b>
This course will examine the application of physiological principles to human performance across the spectrum of exercise training paradigms, nutritional interventions, environmental challenges, and selected clinical exercise interventions. Prereq: 3414.			
<b>4490</b>	<b>Graded Exercise Testing</b>	<b>U</b>	<b>1</b>
Practical experiences in the development of aerobic training programs and fitness evaluation for a variety of adult and youth populations. Prereq: 5685, or EduPAES 5661.01 and 5685; and proof of CPR First/AID certification; or permission of instructor. Not open to students with credit for EduPAES 490.10.			
<b>4525</b>	<b>Promoting Behavior Change in Sport, Leisure, &amp; Exercise</b>	<b>U</b>	<b>3</b>
This course introduces students to theories, mediators, and behavior change strategies applied to sport, leisure, and exercise settings and provides knowledge and opportunities to develop skills to promote adoption and adherence to physical activity. Prereq: Admission to major in Exercise Science Education; Sport Industry; Human Nutrition; Health Promotion, Nutrition and Exercise Science; or Physical Education, Sport, and Physical Activity. Not open to students with credit for EduPAES 525.			
<b>4998</b>	<b>Research in Kinesiology: Health &amp; Exercise Science</b>	<b>U</b>	<b>1 - 12</b>
Independent study related to research in Kinesiology: Health and Exercise Science. Prereq: Enrollment as KnHES major, and permission of instructor.			

## Kinesiology: Health and Exercise Science 275

**4998H Research in Kinesiology: Health & Exercise Science U 1 - 12**

Independent study related to research in Kinesiology: Health and Exercise Science.  
Prereq: Enrollment as KnHES major, and permission of instructor.

**5191 Internship: Health and Exercise Science U G 6 - 12**

Prepares students to assume career-related responsibilities in Health and Exercise Science by providing a practical extended experience under the supervision of an exercise science professional.  
Prereq: 4490 or 5590, and enrollment in Exercise Science Education major; or enrollment in master's program in Kinesiology, Health & Exercise Science concentration. This course is graded S/U.

**5194 Group Studies: Health and Exercise Science U G 1 - 12**

Group study in HES.  
Prereq: Open only to Exercise Science Education majors; permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**5491 Body Composition Evaluation U G 1**

Practical experience in the assessment and interpretation of body composition for a variety of adult, youth and special populations.  
Prereq: Jr standing, and proof of CPR First/AID certification. Not open to students with credit for EduPAES 490.11.

**5492 Muscular Strength and Anaerobic Power Testing U G 1**

Includes practical experiences in the understanding and application of muscular strength and anaerobic power testing. Experience in explanation, motivation of clients and evaluation of the results with application will be included.  
Prereq: Jr standing, and proof of CPR First/AID certification. Not open to students with credit for EduPAES 490.12.

**5493 Fitness Program Development and Evaluation: Older Adult Exercise Prescription U G 1**

Includes practical experiences with facilitated understanding in the assessment, development, delivery and evaluation in the area of individualized fitness and wellness programs.  
Prereq: Jr standing, and proof of CPR First/AID certification. Not open to students with credit for EduPAES 490.13.

**5500 Science of Physical Activity for Health Care Professionals U G 4**

Examines the primary human physiological systems and their response to acute and chronic exercise stimuli, as well as the effects of training and physical activity on health, fitness and human performance.  
Prereq: Jr standing or above. Not open to students enrolled in BS Exercise Science Education program.

**5590 Comprehensive Laboratory in Exercise Science U G 3**

This course provides practical experiences in comprehensive fitness testing, fitness evaluation and the development of training programming for the healthy adult and older adult populations. This course will focus on measuring and evaluating components of health related fitness, which include: cardiorespiratory system, body composition, muscular strength, muscular endurance, and flexibility.  
Prereq: CPR certification. Prereq or concur: 5685, and Jr, Sr, or Grad standing. Repeatable to a maximum of 6 cr hrs.

**5651 Health Program Planning U G 3**

The social, epidemiologic, behavioral and educational foundations of health promotion will be reviewed. Skills in: needs assessment, program planning, and program implementation will be developed.  
Prereq: Not open to students with credit for EduPAES 651.

**5652 Worksite Health Promotion U G 3**

Effective health promotion practice at the workplace. Skills: health needs assessment, health program decision-making, reviewing educational / health behavior literature, health behavior program planning, implementation, and evaluation.  
Prereq: Not open to students with credit for EduPAES 652.

**5685 Adult Exercise Programming-Implementation U G 4**

Introduction to adult exercise training and evaluation methods; emphasis on the implementation of programs for the normal healthy adult.  
Prereq: 3414 or EduPAES 3414. Not open to students with credit for EduPAES 685.

**5703 Health Behavior Theory U G 3**

Critical analysis of Health Behavior Theory. Review of professional literature on development and evaluation of theory based, health behavior change interventions.  
Prereq: 5652 (EduPAES 5652 (652)) or 5651 (EduPAES 5651 (651)); or grad standing. Not open to students with credit for EduPAES 703.

**5704 Health Program Evaluation U G 3**

Methods for evaluating health behavior interventions. Skills to conduct process, impact and outcome evaluations including data analysis will be developed. The political, educational and theoretical aspects of evaluation practices are covered.  
Prereq: 5652 (EduPAES 5652 (652)) or 5651 (EduPAES 5651 (651)); or Grad standing. Not open to students with credit for EduPAES 704.

**7102 Science of Physical Activity and Nutrition for Coaches G 3**

Examines the primary human physiological systems and their response to acute and chronic exercise stimuli, as well as the effects of training and physical activity on health, fitness and athletic performance. The role of nutrition in health and various sport types will be examined with a focus on mainstream current recommendations.  
Prereq: Enrollment in Master of Sports Coaching program.

**7713 Foundations of Physical Activity Behavior G 3**

Addresses the basic conceptual, methodological, and applied considerations in physical activity behavior.  
Prereq: Not open to students with credit for EduPAES 713.

**7714 Advanced Physiology of Exercise G 4**

Examines the physiological responses and adaptations to the demands and stresses of physical activity and exercise in humans and animals.  
Prereq: Not open to students with credit for EduPAES 714.

**7720 Measurement in Physical Activity Behavior G 3**

Addresses basic and advanced considerations in the measurement of physical activity behavior.  
Prereq: Not open to students with credit for EduPAES 720.

**7726 Changing Physical Activity Behavior G 3**

Introduction to theoretical foundations and research base of physical activity behavior. Demonstration of skills in analyzing and implementing appropriate methodologies for exercise behavior research and interventions for individuals and groups.  
Prereq: Not open to students with credit for EduPAES 726.

**7896 Colloquium: Health and Exercise Science G 1 - 10**

A forum for exercise science graduate students to present research proposals and results. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

**8193 Advanced Individual Studies: Health and Exercise Science G 1 - 12**

Advanced independent study in Health and Exercise Science.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**8802 Seminar in Advanced Cardiorespiratory and Training Principles in Exercise G 3**

Refines and increases your understanding of the cardiorespiratory aspects of exercise physiology. This course will provide a conceptual framework for understanding function in the healthy state and diseased state.

**8803 Seminar in Exercise Metabolism G 3**

Graduate seminar focusing on researching in the field of contemporary exercise metabolism.  
Prereq: Permission of instructor. Not open to students with credit for EduPAES 802.02.

**8804 Skeletal Muscle Structure, Function, and Plasticity G 3**

Devoted to the format of a graduate seminar. You will be responsible for researching a specific topic area in the field of contemporary skeletal muscle physiology.  
Prereq: Not open to students with credit for EduPAES 802.04.

**8998 Research: Health and Exercise Science G 1 - 12**

Research topics to be determined through discussion with adviser.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**8999 Dissertation/Thesis Research: Health and Exercise Science G 1 - 9**

Provides graduate students the opportunity to develop and conduct basic and applied health and exercise science research required for the completion of a thesis or dissertation.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

### Kinesiology: Physical Education

**1208 Orientation to Sport and Leisure Studies U 3**

Vocational opportunities, vocational preparation, and significant issues and information associated with sports, recreation and leisure, fitness, and physical education.  
Prereq: Not open to students with credit for EduPAES 208.

**2201 Concepts of Fitness and Wellness U 3**

Focuses on teaching physical fitness and wellness concepts to support instruction in schools and other settings such as community health organizations.

**2262 Coaching the Young Athlete U 3**

Skills and knowledge to coach young athletes.

**2301 Teaching Invasion Games U 3**

Prepares students to teach invasion games in educational settings.  
Prereq: Not open to students with credit for EduPAES 301.

**2307 Adventure Based Learning U 3**

Acquisition of performance skills including philosophy, facilitation techniques, and safety of adventure based learning activities and their roles in different settings.  
Prereq: Not open to students with credit for EduPAES 307.

## 276 Kinesiology: Physical Education

**2542 Lifespan Motor Development** U 3

An overview of the processes involved in motor development and physical growth across the lifespan. Implications of growth and development to teaching, coaching, and clinical settings will be examined.

Prereq: Not open to students with credit for EduPAES 542.

**2601 Teaching Physical Education, Leisure and Exercise** U 3

Designed to teach effective pedagogical and managerial skills for school, recreation and exercise settings.

Prereq: Not open to students with credit for EduPAES 601.

**2620.02 Coaching: Basketball** U 2

Study in the theory, strategy, and mechanics of coaching interscholastic: intercollegiate basketball. Advanced skill level in the elected sport.

Prereq: Jr standing, and permission of instructor. Not open to students with credit for EduPAES 620.02.

**2620.04 Coaching: Football** U 2

Study in the theory, strategy, and mechanics of coaching interscholastic; intercollegiate football. Advanced skill level in the elected sport.

Prereq: Jr standing. Not open to students with credit for EduPAES 620.04.

**3189 Field Experience in Elementary Physical Education** U 3

This field experience develops knowledge of elementary learners, schools, curriculum, pedagogy, pedagogical content knowledge, and assessment.  
Concur: 3740. Admission to PETE undergraduate major or permission of the instructor. Not open to students with credit for EduPAES 689.01.

**3193 Independent Study: Physical Education, Sport & Physical Activity** U 1 - 12

Advanced independent study in physical education.

Prereq: Enrollment in Physical Education, Sport & Physical Activity major, or permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.

**3302 Teaching Racquet Sports** U 3

Prepares students to teach racquet sports in educational settings.

Prereq: Admission to the PESPA major, coaching education minor or physical activity specialist minor. Not open to students with credit for EduPAES 302.

**3305 Court Sports** U 3

Prepares students to instruct techniques and tactics of court sports in sport, recreation and educational settings.

Prereq: Pre-major or major in PESPA, and coaching education minor or physical activity specialist minor.

**3520 Content in Lower Elementary Physical Education** U 3

An indepth analysis of the content and instruction of an lower elementary school Physical Education curriculum. Students will develop skills and knowledge in developmentally appropriate content in elementary physical education.

Prereq: Admission to a Physical Education teacher Education major. Not open to students with credit for EduPAES 520.

**3521 Content in Upper Elementary Physical Education** U 3

An indepth analysis of the content and instruction of the upper elementary school physical education curriculum. Students will develop skills and knowledge in developmentally appropriate content in elementary physical education.

Prereq: Admission to the PESPA major.

**3740 Teaching Physical Education in Elementary Schools** U 3

Provides pedagogical content knowledge in physical education at the elementary school level, and provide the opportunity to apply this knowledge in an elementary school environment.

Prereq: Admission to PETE undergraduate major, or permission of instructor. Concur: 3189. Not open to students with credit for EduPAES 740.

**4189.02 Field Experience in Secondary Physical Education** U 3

This field experience develops knowledge of secondary learners, schools, curriculum, pedagogy, pedagogical content knowledge, and assessment.

Concur: 4741. Admission to PETE undergraduate major or permission of the instructor. Not open to students with credit for EduPAES 689.02.

**4191 Sports Coaching and Recreation Internship** U 1 - 15

Internship in sports coaching and recreation.

Prereq: Enrollment in the Physical Education, Sport, and Physical Activity major and Physical Activity and Coaching Specialist specialization. Repeatable to a maximum of 15 or hrs.

**4191.01 Internship: Elementary Physical Education** U 6

Observation, participation, and responsible teaching in an elementary school setting.

Prereq: 4780, admitted to PETE undergraduate major, and GPA 2.75 or above. Not open to students with EduPAES 786.

**4191.02 Internship: Secondary Physical Education** U 6

Observation, analysis, and teaching in a public secondary school; dual and three-way conferences with supervisor and cooperating teacher.

Prereq: Admitted to PETE undergraduate major and GPA 2.75 or above. Concur: 4780. Not open to students with credit for EduPAES 787.

**4741 Teaching Physical Education in Secondary Schools** U 3

The purpose of this course is to provide pedagogy and pedagogical content knowledge in physical education at the secondary school.

Prereq: Admission to PETE undergrad major or permission of instructor. Not open to students with credit for EduPAES 741.

**4743 Teaching Health Education in Elementary, Middle and High Schools** U 3

Methods for the teaching of comprehensive school health education (CSHE) in elementary, middle, and high schools. It is required for the teacher licensure program in health education teachers.

**4780 Seminar for Student Teaching** U 2

Seminar designed to connect students' school-based internship experiences with pedagogical knowledge through discussions and reflections about teaching physical education.

Prereq: admission to PETE undergrad major and GPA 2.75 or above. Concur: 4191.01 and 4191.02. Not open to students with credit for EduPAES 780.

**5194 Group Studies: Physical Education, Sport & Physical Activity** U G 1 - 12

Group study in Physical Education.

Prereq: Open only to Physical Education, Sport & Physical Activity majors, and permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.

**5521 Skill Analysis** U G 3

Provides students with the knowledge and skills required to successfully conduct an analysis of skills and instructional tasks and develop teaching and coaching progressions.

Prereq: Grad standing, admission to the PESPA pre-major, major, coaching education minor, or physical activity specialist minor.

**5544 Introduction to Adapted Physical Activity** U G 3

Introduction to adapted physical activity across school, community, and clinical settings.

Prereq: Major in the College of EHE, or permission of instructor. Not open to students with credit for EduPAES 544.

**5643 Coaching Effectiveness** U G 3

This course is designed to introduce students to effective coaching strategies and practices.

Prereq: Enrollment in undergraduate Physical Activity Specialist Strand of PESPA major or Coaching Education minor. Not open to students with credit for EduPAES 643.

**5655 Perspectives on Coaching** U G 3

The course is designed to provide students varied perspectives on coaching from youth sports coaching, to high school and club coaching, and to collegiate coaching. The course will examine current trends and issues in athletics, sports and coaching drawing on the expertise of coaches in the community and at The Ohio State University.

**5657 Sport and Disability** U G 3

Overview of sport for individuals with disabilities with emphasis given to physiological, psychological, and socio-cultural perspectives.

Prereq: Undergrad or Grad major in EHE; or coaching education minor; or interdisciplinary disability studies minor and graduate specialization; or physical activity specialist minor. Not open to students with credit for EduPAES 657.

**5676 Programming for Severe Physical Impairments** U G 3

Considerations related to the physical, motor and fitness needs of individuals with severe physical impairments within a physical activity context.

Prereq: Ugrd or Grad standing in EHE, or permission of instructor.

**5709 Schools, Curriculum and Physical Education** U G 3

Examines the role of physical education within the social, historical, and philosophical foundations of education in the United States. We examine curriculum as a mechanism for the operationalization of different educational values and philosophies both as a theoretical exercise and as practice.

Prereq: 2601 or EduPAES 2601, or Grad standing.

**5795 Sociocultural Issues in Sport, Recreation and Physical Education** U G 3

Provides students with knowledge, understanding, and experience related to various sociocultural issues within sport, recreation and physical education settings.

Prereq: Enrollment in PESPA major, coaching minor, physical activity specialist minor, PE Grad program, or permission of instructor.

**5975 Exploring Japan through Sport, Wellness and Culture** U G 3

The Exploring Japan through Sport, Wellness and Culture course is designed to provide students with hands on, experiential activities that will foster an understanding of Japan and Japanese culture. Prior leaving for Japan, students will be exposed to the Japanese language and customs through lectures at Ohio State. Students will then participate in a two-week experience in Japan that will include participating in the Tsukuba Summer Institute (8 days) plus cultural excursions to Tokyo, Tsukuba Shrine, and Nikko. Enrollment preference given to Physical Education, Sport and Physical Activity majors.

Repeatable to a maximum of 6 or hrs.

**6100 Race, Gender and Culture in Sports** G 3

Provides students with knowledge, understanding, and experiences related to the following topics in sport: ethnicity and race, gender, culture, religion, and language, participation and socialization, social theories, and critical race and social justice theories.

Prereq: Enrollment in Master of Sports Coaching program.

## Kinesiology: Physical Education 277

<b>6101</b>	<b>Ethics of Coaching</b>	<b>G</b>	<b>3</b>
Examines ethical and moral issues that are central to coaching in contemporary sport setting and address the way in which we should treat human beings in sports settings. Issues such as fairness, equality, integrity, and sport's purpose will be discussed and questions of an ethical and moral nature. Prereq: Enrollment in Master of Sports Coaching program.			
<b>6222</b>	<b>Recruiting Student-Athletes for College Athletics</b>	<b>G</b>	<b>3</b>
Recruiting college student-athletes represents one of the most important tasks that coaches engage in to ensure their success. This course examines the key concepts, knowledge and skills in recruiting student-athletes to college. We examine recruitment from the perspective of the recruiter and the student-athlete.			
<b>6642</b>	<b>Sport Skill and Game Analysis</b>	<b>G</b>	<b>3</b>
The course is designed to provide students with both the knowledge and skills required to successfully conduct a qualitative analysis of skills and games using technological tools. Integrations of theory and practice are reflected in a variety of assignments, projects, and group discussion of practical issues in coaching. Prereq: Enrollment in Master of Sports Coaching program.			
<b>6643</b>	<b>Coaching Effectiveness and Expertise</b>	<b>G</b>	<b>3</b>
This class is about developing an understanding the effective coaching behaviors in particular domains; and determining why and what you believe about these effective coaching practices. Prereq: Enrollment in Master of Sports Coaching program.			
<b>7100</b>	<b>Mental Preparation and Performance in Sport</b>	<b>G</b>	<b>3</b>
Examination of psychological theories and research related to mental preparation and performance in sport. An introduction to the field which will provide broad overview of the major topics in the area. Prereq: Enrollment in Master of Sports Coaching program.			
<b>7103</b>	<b>Research on Coaches</b>	<b>G</b>	<b>3</b>
Students learn about research methods and design, and develop and conduct mini-action research derived from their practice. Students develop skills in the questions they generate about their professional practice, and to engage in structured inquiry as a strategy for enhancing coaching environments. Prereq: Enrollment in Master of Sports Coaching program.			
<b>7104</b>	<b>Proseminar for Coaches</b>	<b>G</b>	<b>3</b>
This proseminar focuses on the development of knowledge, abilities, and dispositions necessary for effective, participative, and productive leadership in coaching settings. Topics covered in this course include leadership skills, interpersonal relationships, organizational membership, branding, the relationship between the sporting team and the community. Prereq: Enrollment in Master of Sports Coaching program.			
<b>7754</b>	<b>Advanced Motor Development and Learning</b>	<b>G</b>	<b>3</b>
Physical growth and motor skill acquisition from infancy to adolescence. Principles of motor learning. Application of content to teaching, coaching, and clinical settings. Prereq: Not open to students with credit for EduPAES 754 or 851.			
<b>7863</b>	<b>Teaching Health and Fitness Courses at the College Level</b>	<b>G</b>	<b>3</b>
Enhances the preparation of students to teach health and fitness courses at the college level. Prereq: Admission to PETE or PA Grad program, or permission of instructor. Not open to students with credit for EduPAES 863.			
<b>7868</b>	<b>Research on Teaching in Physical Education</b>	<b>G</b>	<b>3</b>
Provides students with a basis for understanding three decades of research in this area. The student will develop competencies as a consumer of educational research and practice and as a teacher educator. Prereq: Admission to PETE or PA Grad program, or permission of instructor. Not open to students with credit for EduPAES 868.			
<b>8193</b>	<b>Advanced Individual Studies: Physical Education, Sport &amp; Physical Activity</b>	<b>G</b>	<b>1 - 12</b>
Advanced independent study course in physical education or adapted physical education. Prereq: Admission to Kinesiology graduate program, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8865</b>	<b>Advanced Socio-cultural issues in Physical Education</b>	<b>G</b>	<b>3</b>
Examines issues of gender, race, health, class, disability, religion, and homophobia within the context of physical education and physical education teacher education. Prereq: Admission to Grad program in Physical Education, or permission of instructor. Not open to students with credit for EduPAES 865.			
<b>8872</b>	<b>Advanced Study in Adapted Physical Education</b>	<b>G</b>	<b>3</b>
Provides students the opportunity to study advanced topics essential to Adapted Physical Education. Prereq: Admission to Grad major in Kinesiology, or permission of instructor. Not open to students with credit for EduPAES 872.			
<b>8891</b>	<b>Doctoral Seminar in Physical Education</b>	<b>G</b>	<b>3</b>
Seminar that examines the theoretical, methodological, and practical aspects of research in the physical education field. Specific content of the course will vary from semester to semester. Prereq: Enrollment in the Kinesiology Ph.D. program, or permission of instructor. Repeatable to a maximum of 18 cr hrs.			

<b>8892</b>	<b>Research Seminar in Physical Education Teacher Education</b>	<b>G</b>	<b>3</b>
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Research seminar designed to enhance students' knowledge on current experimental techniques, theories and models of physical education, sport and physical activity with an emphasis on preparing physical education teachers.  
Prereq: Enrollment in the Ed.D. in Kinesiology or Physical Education Concentration, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

<b>8998</b>	<b>Research: Physical Education, Sport &amp; Physical Activity</b>	<b>G</b>	<b>1 - 12</b>
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Examines the process product, mediating product, and ecological paradigms in educational research from their beginnings in the 1970's to the present day.  
Prereq: Grad standing in Physical Education, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

<b>8999</b>	<b>Dissertation/Thesis Research: Physical Education, Sport &amp; Physical Activity</b>	<b>G</b>	<b>1 - 6</b>
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Dissertation research in physical education or adapted physical education.  
Prereq: Admission into Kinesiology graduate program, and permission of the instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

## Kinesiology: Sport, Fitness, and Health Program

<b>1102</b>	<b>First Aid and CPR</b>	<b>U</b>	<b>2</b>
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Necessary skills to sustain life, reduce pain, and minimize consequences of injury/illness during an emergency. Course is designed to lead to Certification. Lab fees required.  
Prereq: Not open to students with credit for EduPAES 102.

<b>1103</b>	<b>Introduction to Health and Wellness in American Society</b>	<b>U</b>	<b>2</b>
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A study of student health problems; designed to foster understandings and attitudes needed for intelligent decision-making related to present and future health needs.

<b>1104</b>	<b>Stress Management for the College Student</b>	<b>U</b>	<b>3</b>
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This course is designed to help students learn to identify, understand, prevent and manage stress as it occurs in everyday life. The course has two components: the lecture component will address the cognitive approach to stress management; the lab portion will allow students to experience the fundamentals of yoga and its role in stress reduction in the physical, psychological & spiritual domains.

<b>1137</b>	<b>Sport for the Spectator</b>	<b>U</b>	<b>2</b>
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The study of various popular spectator sports including football, basketball, baseball, golf, tennis, ice hockey and others.

<b>1139.01</b>	<b>Introductory Program of Outdoor Pursuits: Scuba II</b>	<b>U</b>	<b>1</b>
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Introduction to fresh water diving. Student responsible for travel and activity costs. Student must provide wetsuit (rentals may be available).  
Prereq: 1179 or EduPAES 1179, or equiv, and permission of instructor. Not open to students with credit for EduPAES 139.01. This course is graded S/U.

<b>1139.02</b>	<b>Introductory Program of Outdoor Pursuits: Whitewater Rafting</b>	<b>U</b>	<b>1</b>
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Introduction to basic whitewater rafting, including: river reading, paddling techniques, equipment, trip planning, and safety. Student must provide sleeping bag and appropriate clothing for river conditions.  
Prereq: Permission of instructor. Not open to students with credit for EduPAES 139.02. This course is graded S/U.

<b>1139.03</b>	<b>Introductory Program of Outdoor Pursuits: Backpacking I</b>	<b>U</b>	<b>1</b>
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Introduction to basic backpacking techniques, equipment, wilderness travel, emergency procedures, and environmental awareness. Travel and subsistence costs for activities will be borne by the student. Student must provide sleeping bag and hiking boots.  
Prereq: Permission of instructor. Not open to students with credit for EduPAES 139.03. This course is graded S/U.

<b>1139.06</b>	<b>Introductory Program of Outdoor Pursuits: Skiing I</b>	<b>U</b>	<b>1</b>
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Beginning skills and knowledge needed for outdoor skiing. Students must provide equipment.  
Prereq: Permission of instructor. This course is graded S/U.

<b>1139.07</b>	<b>Introductory Program of Outdoor Pursuits: Experimental Sections</b>	<b>U</b>	<b>1</b>
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Activities will be announced and publicized whenever an experimental section is deemed worthy of trial.  
Prereq: Permission of instructor. Not open to students with credit for EduPAES 139.07. This course is graded S/U.

<b>1139.08</b>	<b>Introductory Program of Outdoor Pursuits: Fly Fishing</b>	<b>U</b>	<b>1</b>
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Introduction to basic materials and methods of fly fishing including choosing and using proper equipment suited for fly fishing in ponds, lakes and rivers in the Midwest.  
This course is graded S/U.

<b>1139.09</b>	<b>Introductory Program of Outdoor Pursuits: Caving I</b>	<b>U</b>	<b>1</b>
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Introduction to basic caving techniques, equipment, trip planning, and safety; cave related ecology, flora, and fauna will also be emphasized. Travel and subsistence costs for activities will be borne by the student. Student must provide sleeping bag.  
Prereq: Permission of instructor. Not open to students with credit for EduPAES 139.09. This course is graded S/U.

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<b>1139.11</b>	<b>Introductory Program of Outdoor Pursuits: Rock Climbing</b>	<b>U</b>	<b>1</b>
Basic rock climbing techniques, rope handling, and safety systems will be covered. Must be in good physical condition. Travel and subsistence costs for activities will be borne by the student. Students must provide sleeping bag and climbing equipment. Prereq: Not open to students with credit for EduPAES 139.11. This course is graded S/U.			
<b>1139.14</b>	<b>Introductory Program of Outdoor Pursuits: Skydiving</b>	<b>U</b>	<b>1</b>
Introduction to skydiving including techniques, safe practice and strategies. Students will have the opportunity to skydive; however, it is not required to pass the course. Prereq: Permission of instructor. Not open to students with credit for EduPAES 139.14. This course is graded S/U.			
<b>1139.15</b>	<b>Introduction to Body Flight</b>	<b>U</b>	<b>1</b>
The purpose of this class is to introduce students to the concepts of human body flight without vehicle assistance. Instruction will include historical development of body flight, various facility types and the challenges each style presents. Concepts of aeronautics, competition, artistry, leisure, basic flying styles and safe practices will be taught. Repeatable to a maximum of 2 or hrs. This course is graded S/U.			
<b>1139.18</b>	<b>Introductory Program of Outdoor Pursuits: Hot Air Ballooning</b>	<b>U</b>	<b>1</b>
Introduction to hot air ballooning. Covers history, design, structure, and flight procedures of the modern balloon. Students crew flights and act as balloon chasers. Prereq: Not open to students with credit for EduPAES 139.18. This course is graded S/U.			
<b>1139.21</b>	<b>Introductory Whitewater Kayaking</b>	<b>U</b>	<b>1</b>
The purpose of this course is to provide the student with the beginning level skills and knowledge in whitewater kayaking. As a result the student will improve his/her general physical fitness and skill performance. Principles, techniques, safe practices and strategies of whitewater kayaking will be taught throughout the course. This is an introductory course for beginners.			
<b>1139.22</b>	<b>Introductory Sea Kayaking</b>	<b>U</b>	<b>1</b>
To provide the student with the beginning level skills and knowledge in sea kayaking. As a result the student will improve his/her general physical fitness and skill performance. Principles, techniques, safe practices and strategies of sea kayaking will be taught throughout the course. This is an introductory course for beginners. This course is graded S/U.			
<b>1139.24</b>	<b>Advanced Scuba</b>	<b>U</b>	<b>1</b>
Advanced Scuba can be different for each student involved. It consists of the continuing educational system of specialty courses involved in Scuba diving. Available courses include, Ice diving, AOW, Night diving, DPV diving, Deep diving, Nitrox diving, Drift diving, Search & Recovery diving, Drysuit diving, Wreck diving, Cavern diving and Technical diving for those who qualify. Prereq: Successful completion of KnSFHP 1139.01, and certification or certification as an Open Water Diver through a nationally recognized scuba diving organization. Some specialty areas require certification as an Advanced Open Water Diver. Repeatable to a maximum of 2 or hrs. This course is graded S/U.			
<b>1140.05</b>	<b>Outdoor Pursuits Program: Lake Erie Sport Fishing</b>	<b>U</b>	<b>2</b>
Techniques and equipment used in Lake Erie sport fishing featuring Lake Erie angling trips with lectures that include related aquatic science information. Prereq: Permission of instructor. Not open to students with credit for EduPAES 140.05.			
<b>1140.10</b>	<b>Outdoor Pursuits Program: Wilderness First Aid</b>	<b>U</b>	<b>1</b>
Will train and certify students to cope with basic wilderness hazards and medical emergencies. Upon successful completion of the course students will receive a SOLO WFA completion card valid for 3 years. Prereq: Not open to students with credit for EduPAES 140.10. This course is graded S/U.			
<b>1140.11</b>	<b>Wilderness First Responder</b>	<b>U</b>	<b>3</b>
The Wilderness First Responder course will provide students the knowledge and skills needed to respond to backcountry medical and trauma situations. This is an 80-hr intensive course that meets 8-10 consecutive days between semesters or during a 4-week Session. Upon successful completion students will receive a Wilderness First Responder completion card valid for 3 years. Additional fee required.			
<b>1141.01</b>	<b>Wall Climbing</b>	<b>U</b>	<b>1</b>
Introduction of basic rock wall climbing techniques including rope handling and safety systems.			
<b>1141.02</b>	<b>Intermediate Wall Climbing</b>	<b>U</b>	<b>1</b>
To provide the student with intermediate techniques, lead climbing and training concepts of wall climbing. Prereq: 1141.01, EduPAES 1141, or equiv.			
<b>1143.01</b>	<b>Badminton I</b>	<b>U</b>	<b>1</b>
Beginning skills and knowledge essential for playing badminton. Prereq: Not open to students with credit for EduPAES 143.01.			
<b>1143.02</b>	<b>Badminton II</b>	<b>U</b>	<b>1</b>
Continuation of 1143.01 with emphasis on advanced strategy in doubles and singles; intermediate skills. Prereq: 1143.01 or EduPAES 1143.01, or equiv. Not open to students with credit for EduPAES 143.02.			

<b>1144.01</b>	<b>Basketball Women</b>	<b>U</b>	<b>1</b>
Skill and strategy necessary for playing basketball. Prereq: Limited to women only. Not open to students with credit for EduPAES 144.01.			
<b>1144.02</b>	<b>Basketball Men</b>	<b>U</b>	<b>1</b>
Skill and strategy necessary for playing basketball. Prereq: Limited to men only. Not open to students with credit for EduPAES 144.02.			
<b>1146</b>	<b>Boxing for Beginners</b>	<b>U</b>	<b>1</b>
Introductory skills and knowledge necessary for boxing. Light contact sparring only. Students must provide boxing gloves and mouthguard.			
<b>1147</b>	<b>Principles of Fitness and Wellness</b>	<b>U</b>	<b>2</b>
Course is designed to introduce students to concepts of wellness which include domains of the physical, social, emotional, spiritual, environmental, occupational, intellectual, and financial. The course will emphasize the relationship between wellness and quality of life over the lifespan. Students will develop a personal program that includes exercise, nutrition, and disease prevention.			
<b>1148.01</b>	<b>Conditioning Activities: Circuit Training</b>	<b>U</b>	<b>1</b>
Students will participate in circuit training which combines strength and cardiovascular endurance activities.			
<b>1148.02</b>	<b>Conditioning Activities: Jogging</b>	<b>U</b>	<b>1</b>
Students will participate in a progressive jogging program in which they will jog from 1-3.5 miles.			
<b>1148.03</b>	<b>Conditioning Activities: Swimming</b>	<b>U</b>	<b>1</b>
Student will participate in a progressive swim conditioning program that culminates in an end-of-the-semester class swim meet.			
<b>1148.04</b>	<b>Conditioning Activities: Strength Training</b>	<b>U</b>	<b>1</b>
Students will participate in a progressive strength and endurance training program using weight machines, free weights, and other strength equipment.			
<b>1148.05</b>	<b>Conditioning Activities: Cardio Exercise Training</b>	<b>U</b>	<b>1</b>
Students will participate in a progressive cardiovascular exercise training program that will utilize popular stationary equipment including treadmills, elliptical machines, cycles, and rowing machines.			
<b>1148.06</b>	<b>Conditioning Activities: Group Fitness</b>	<b>U</b>	<b>1</b>
Students will participate in a progressive aerobics program that will include: step, body sculpting, cardio dance, HITT (high intensity interval training) and boot camp style training.			
<b>1148.07</b>	<b>Conditioning Activities: Pilates</b>	<b>U</b>	<b>1</b>
Students will participate in a progressive exercise program that utilizes pilates.			
<b>1148.08</b>	<b>Conditioning Activities: Kickboxing</b>	<b>U</b>	<b>1</b>
Students will participate in a progressive exercise program that utilizes kickboxing.			
<b>1148.09</b>	<b>Indoor Cycling</b>	<b>U</b>	<b>1</b>
This course is designed for students with little to no experience with indoor cycling, and for those interested in taking a more focused approach to indoor cycling. The class will introduce students to the concept of indoor cycling as a means to increased fitness. Students will complete cycle workouts that focus on cardiovascular training using the indoor cycle.			
<b>1148.10</b>	<b>Circuit Cycling</b>	<b>U</b>	<b>1</b>
This course is designed for students with little to no experience with circuit training utilizing free weight strength equipment and indoor cycles, and for those interested in taking a more focused approach to indoor cycling in the format of circuit training. The class will introduce students to the concept of circuit training on and off the indoor cycle as a means to increased fitness.			
<b>1150.01</b>	<b>Lifetime Fitness and Wellness Strength Training</b>	<b>U</b>	<b>2</b>
Online course that promotes principles of fitness and wellness over the lifespan. Prereq: Not open to students with credit for 1147, 1148.04 or 1149.04 1150.02, or EduPAES 1147, 1148.04, 1149.04, 1150.01, or 1150.02.			
<b>1150.02</b>	<b>Lifetime Fitness and Wellness Cardiovascular Exercise Training</b>	<b>U</b>	<b>2</b>
Online course that promotes principles of fitness and wellness over the lifespan. Prereq: Not open to students with credit for 1147, 1148.05 or 1149.05, 1150.01, or EduPAES 1147, 1148.05, 1149.05, 1150.01, or 1150.01.			
<b>1151</b>	<b>Strength Training II</b>	<b>U</b>	<b>1</b>
Strength and power training; advanced anaerobic and speed conditioning. Prereq: 1148.04 or 1149.04, or EduPAES 1148.04 or 1149.04, or equiv. Repeatable to a maximum of 2 or hrs or 3 completions.			
<b>1152.01</b>	<b>Social Dance I Women</b>	<b>U</b>	<b>1</b>
Introduction to basic steps and variations of selected dances such as the foxtrot, waltz, and swing. Limited to women only. Prereq: Not open to students with credit for 1152.01 or EduPAES 1152.01 (152.01).			
<b>1152.02</b>	<b>Social Dance I Men</b>	<b>U</b>	<b>1</b>
Introduction to basic steps and variations of selected dances such as the foxtrot, waltz, and swing. Limited to men only. Prereq: Not open to students with credit for 1152.01 or EduPAES 1152.01 (152.01).			



## Kinesiology: Sport, Fitness, and Health Program 279

<b>1152.03 Social Dance II Women</b>	<b>U</b>	<b>1</b>
Continuation of 1152.01 with emphasis on style and technique; introduction to additional social dance contents. Limited to women only. Prereq: 1152.01 or EduPAES 1152.01 (152.01), or equiv. Not open to students with credit for 1152.04, or EduPAES 1152.04 (152.04). Repeatable to a maximum of 3 cr hrs.		
<b>1152.04 Social Dance II Men</b>	<b>U</b>	<b>1</b>
Continuation of 1152.02 with emphasis on style and technique; introduction to additional social dance contents. Limited to men only. Prereq: 1152.02, or EduPAES 1152.02, or equiv. Not open to students with credit for 1152.03, or EduPAES 1152.03 (152.03).		
<b>1152.07 Line Dancing</b>	<b>U</b>	<b>1</b>
To provide the student with basic skill level and knowledge of line dancing. Principles, techniques, safe practices and various types of line dances will be taught throughout the course.		
<b>1152.08 LaBlast Fitness Foundations</b>	<b>U</b>	<b>1</b>
Introduce students to LaBlast Fitness Foundations basic concepts which is a balance between dance and fitness, based on ballroom dance steps but partner-free. Beginning with basic rhythms for each dance and building on the basic steps, students will learn to combine steps into patterns and combinations for each style of dance. Principles, techniques, safe practice and posture will be covered.		
<b>1154.01 Fencing I</b>	<b>U</b>	<b>1</b>
Basic skills and knowledge needed for foil fencing. Prereq: Not open to students with credit for EduPAES 154.01.		
<b>1155.01 Physical Fitness Training for the ROTC: Army</b>	<b>U</b>	<b>1</b>
Designed to allow ROTC student to demonstrate improvement in overall physical conditioning, body composition, and general health. Prereq: Must be enrolled in Army ROTC. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.		
<b>1155.02 Physical Fitness Training for the ROTC: Navy</b>	<b>U</b>	<b>1</b>
Designed to allow ROTC student to demonstrate improvement in overall physical conditioning, body composition, and general health. Prereq: Must be enrolled in Navy ROTC. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.		
<b>1156 Flag Football</b>	<b>U</b>	<b>1</b>
Fundamental skills of flag football. Prereq: Not open to students with credit for EduPAES 156.03.		
<b>1157.01 Golf I</b>	<b>U</b>	<b>1</b>
Introductory skills and knowledge preparatory to course play with emphasis on driving, putting, and chipping. Prereq: Not open to students with credit for EduPAES 157.01.		
<b>1157.02 Golf II</b>	<b>U</b>	<b>1</b>
Continuation of 1157.01 with emphasis on introduction to course play. Prereq: 1157.01, or EduPAES 1157.01 or equiv. Repeatable to a maximum of 3 cr hrs.		
<b>1157.03 Golf For Business and Life</b>	<b>U</b>	<b>1</b>
Provides the student with an introduction to golf skills, golf rules, etiquette and terms, and golf history. The primary instructor, along with scheduled golf professionals and guest speakers will teach this course. Speakers from business will share what part golf played in their success and how golf can help the students in their business and personal life.		
<b>1158.01 Tumbling I</b>	<b>U</b>	<b>1</b>
Introduction to basic through advanced-basic tumbling skills. Prereq: Not open to students with credit for EduPAES 158.01.		
<b>1158.02 Tumbling II</b>	<b>U</b>	<b>1</b>
Introduction to advanced-basic through intermediate tumbling skills. Prereq: 1158.01, or EduPAES 1158.01 or equiv. Repeatable to a maximum of 3 cr hrs.		
<b>1161.01 Horseback Riding: Western Style I</b>	<b>U</b>	<b>1</b>
Student will safely halter, lead, groom, saddle, bridle, ride at a walk and jog/canter in the Western riding discipline. Go to go.osu.edu/ridingclasses to schedule individual riding times. Prereq: Travel and stable costs are responsibility of the student. Not open to students with credit for EduPAES 161.01. This course is graded S/U.		
<b>1161.02 Horseback Riding: Western Style II</b>	<b>U</b>	<b>1</b>
Student will effectively troubleshoot equipment, walk, jog, or trot without breaking gait, halts on command; learn to canter/lope, and good seat and control. Go to go.osu.edu/ridingclasses to schedule individual riding times. Prereq: 1161.01, EduPAES 1161.01, or prior experience; travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Not open to students with credit for EduPAES 161.02. This course is graded S/U.		

<b>1161.03 Horseback Riding: Western Style III</b>	<b>U</b>	<b>1</b>
Student will refine level I and II skills, effectively execute patterns and transitions; identify and explain bits, clean equipment, identify concentrates and roughages (feeding). Go to go.osu.edu/ridingclasses to schedule individual riding times. Prereq: 1161.02, EduPAES 1161.02, or equiv; travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.		
<b>1161.05 Horseback Riding: English Style I</b>	<b>U</b>	<b>1</b>
Student will safely halter, lead, groom, saddle, bridle, ride at a walk and jog/canter in the English riding discipline. Go to go.osu.edu/ridingclasses to schedule individual riding times. Prereq: Travel and stable costs are responsibility of the student. Not open to students with credit for EduPAES 161.05. This course is graded S/U.		
<b>1161.06 Horseback Riding: English Style II</b>	<b>U</b>	<b>1</b>
Student will effectively access equipment; walk, jog, or trot without breaking gait, halts on command; learn to canter/lope, and good seat and control. Go to go.osu.edu/ridingclasses to schedule individual riding times. Prereq: Travel and stable costs are responsibility of the student. Not open to students with credit for EduPAES 161.06. This course is graded S/U.		
<b>1161.07 Horseback Riding: English Style III</b>	<b>U</b>	<b>1</b>
Student will refine level I and II skills, effectively execute patterns and transitions; identify and explain bits, clean equipment, be able to explain feeding basics. Go to go.osu.edu/ridingclasses to schedule individual riding times. Prereq: 1161.06, or EduPAES 1161.06 or equiv; travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.		
<b>1169.02 Martial Arts Forms: Judo I</b>	<b>U</b>	<b>1</b>
Introductory skills and knowledge essential in throwing techniques and mat work of Judo. Prereq: Not open to students with credit for 1169.03, EduPAES 1169.03, or 169.04.		
<b>1169.04 Martial Arts Forms: Karate I</b>	<b>U</b>	<b>1</b>
Introduction to the fundamental forms and techniques of Karate. Prereq: Not open to students with credit for EduPAES 169.07.		
<b>1169.06 Martial Arts Forms: Shuai Chiao</b>	<b>U</b>	<b>1</b>
Introduction to the various forms and techniques of Shuai Chiao-Chinese wrestling, a combination of Karate and Judo. Prereq: Not open to students with credit for EduPAES 169.10.		
<b>1169.07 Martial Arts Forms: Tae Kwon Do I</b>	<b>U</b>	<b>1</b>
Beginning course in the Korean martial art form; includes etiquette, basic blocking, thrusting and kicking techniques, and self defense. Prereq: Not open to students with credit for EduPAES 169.13.		
<b>1169.09 Martial Arts Forms: T'ai Chi Ch'uan I</b>	<b>U</b>	<b>1</b>
An introduction to T'ai Chi Ch'uan with emphasis on an exploration of body/energy awareness. Prereq: Not open to students with credit for EduPAES 169.16.		
<b>1170.01 Racquetball I</b>	<b>U</b>	<b>1</b>
Beginning skills and knowledge for students with no prior experience in racquetball. Prereq: Not open to students with credit for EduPAES 170.01.		
<b>1172.01 Self Defense Women</b>	<b>U</b>	<b>1</b>
Skills and understandings essential to defend oneself against an aggressor with emphasis on avoiding attack. Prereq: Limited to women only. Not open to students with credit for EduPAES 172.01.		
<b>1172.02 Self Defense Men</b>	<b>U</b>	<b>1</b>
Skills and understandings essential to defend oneself against an aggressor with emphasis on avoiding attack. Prereq: Limited to men only. Not open to students with credit for EduPAES 172.02.		
<b>1174 Soccer</b>	<b>U</b>	<b>1</b>
Techniques and knowledge essential for playing soccer. Prereq: Not open to students with credit for EduPAES 174.		
<b>1178.01 Swimming I</b>	<b>U</b>	<b>1</b>
Beginning swimming. Open only to non-swimmers and students with no deep water experience. Prereq: Students must provide bathing suit. Not open to students with credit for EduPAES 178.01.		
<b>1178.02 Swimming II</b>	<b>U</b>	<b>1</b>
Elementary swimming skills for those who can swim in deep water but no farther than 2 pool lengths (50 yards). Repeatable to a maximum of 3 cr hrs.		
<b>1178.03 Swimming III</b>	<b>U</b>	<b>1</b>
Intermediate skills for those who can swim at least 100 yards using the front crawl and at least 2 other strokes. Student must provide bathing suit. Repeatable to a maximum of 3 cr hrs.		

## 280 Kinesiology: Sport, Fitness, and Health Program

<b>1179</b>	<b>Skin and Scuba Diving</b>	<b>U</b>	<b>2</b>
Skills and knowledge essential for safe diving and preparation for open water checkout dives. Student must be able to swim .25-mile in 10 min. Student must provide bathing suit and bear cost of required special scuba medical exam. Prereq: Not open to students with credit for EduPAES 179.			
<b>1185.01</b>	<b>Table Tennis I</b>	<b>U</b>	<b>1</b>
Beginning skills and knowledge essential for playing table tennis with emphasis on the use of backspin and topspin in the singles game. Prereq: Not open to students with credit for EduPAES 185.01.			
<b>1185.02</b>	<b>Table Tennis II</b>	<b>U</b>	<b>1</b>
Continuation of 1185.01 with emphasis on advanced strokes and their application in the playing of singles and doubles. Prereq: 1185.01. Repeatable to a maximum of 3 cr hrs.			
<b>1188.01</b>	<b>Tennis I</b>	<b>U</b>	<b>1</b>
Skills and knowledge essential in playing tennis. Beginning skills; forehand, backhand, and serve-singles play. Prereq: Student must provide racket and 6 balls. Not open to students with credit for EduPAES 188.01.			
<b>1191.01</b>	<b>Volleyball I</b>	<b>U</b>	<b>1</b>
Introduction to power volleyball. Prereq: Not open to students with credit for EduPAES 191.01.			
<b>1191.02</b>	<b>Volleyball II</b>	<b>U</b>	<b>1</b>
Continuation of power volleyball fundamental skill perfection and game strategies woven to produce an intermediate playing experience. Prereq: 1191.01, or EduPAES 1191.01, or equiv. Repeatable to a maximum of 3 cr hrs.			
<b>1195.01</b>	<b>Yoga I</b>	<b>U</b>	<b>1</b>
Introduction to fundamental techniques and basic yogic principles of pranayama (breath control), asana (posture), relaxation, and meditation; emphasis on major postures. Prereq: Not open to students with credit for EduPAES 195.01.			
<b>1195.02</b>	<b>Yoga II</b>	<b>U</b>	<b>1</b>
Asanas (postures) at the intermediate level of Hatha yoga are introduced; continued development and practice of relaxation and meditative techniques; further exploration of yogic philosophy. Prereq: 1195.01, or EduPAES 1195.01, or equiv. Repeatable to a maximum of 3 cr hrs.			
<b>1196.01</b>	<b>Varsity Squads: Baseball</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity baseball squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.02</b>	<b>Varsity Squads: Basketball</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity basketball squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.03</b>	<b>Varsity Squads: Cross Country</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity cross country squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.04</b>	<b>Varsity Squads: Fencing</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity fencing squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.05</b>	<b>Varsity Squads: Field Hockey</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity field hockey squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.06</b>	<b>Varsity Squads: Football</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity football squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.07</b>	<b>Varsity Squads: Golf</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity golf squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.08</b>	<b>Varsity Squads: Gymnastics</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity gymnastics squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.09</b>	<b>Varsity Squads: Ice Hockey</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity ice hockey squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			

<b>1196.10</b>	<b>Varsity Squads: Lacrosse</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity lacrosse squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.11</b>	<b>Varsity Squads: Pistol</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity pistol squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.12</b>	<b>Varsity Squads: Riflery</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity riflery squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.13</b>	<b>Varsity Squads: Soccer</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity soccer squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.14</b>	<b>Varsity Squads: Softball</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity softball squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.15</b>	<b>Varsity Squads: Swimming</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity swimming squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.16</b>	<b>Varsity Squads: Swimming (Synchronized)</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity swimming (synchronized) squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.17</b>	<b>Varsity Squads: Tennis</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity tennis squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.18</b>	<b>Varsity Squads: Track and Field</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity track and field squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.19</b>	<b>Varsity Squads: Volleyball</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity volleyball squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.20</b>	<b>Varsity Squads: Wrestling</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity wrestling squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.21</b>	<b>Varsity Squads: Rowing</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity rowing squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1196.22</b>	<b>Varsity Squads: Diving</b>	<b>U</b>	<b>2</b>
Participation as a player on an OSU varsity squad. Prereq: Must be a member of the OSU varsity diving squad. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>1197</b>	<b>Competitive Club Sports</b>	<b>U</b>	<b>1</b>
Participation as a member of a competitive club sport team. Prereq: Soph standing, and a member of an OSU club sport. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>2250</b>	<b>Cancer Prevention</b>	<b>U</b>	<b>2</b>
Discussion of the latest findings on avoiding cancer through lifestyle choices and assessment of one's family health history.			
<b>3193</b>	<b>Independent Study: Sport, Fitness and Health Program</b>	<b>U</b>	<b>1 - 12</b>
Independent study in Sport, Fitness and Health. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>3312</b>	<b>Issues in Alcohol/Drug Use and Abuse</b>	<b>U</b>	<b>2</b>
Provides an understanding of the dynamics of substance abuse. Prereq: Not open to students with credit for EduPAES 312.			

Kinesiology: Sport Industry, Sport Management

## Kinesiology: Sport Industry, Sport Management 281

<b>2100</b>	<b>Introduction to Esports and Game Studies</b>	<b>U</b>	<b>3</b>
This course will take a broad look at topics relevant to Esports and game studies such as history, social context, biomedical, physiology, science and technology, player development, humanistic values, translational applications and the management and the business of Esports.			
<b>2210</b>	<b>History of Sport in 19th Century America</b>	<b>U</b>	<b>3</b>
Explores intersection between sport and society in 19th century America. Emphasis on modernity; race, class, gender & ethnicity; rise of the city; religious, intellectual and scientific thought. Prereq: Not open to students with credit for EduPAES 210. GE historical study course.			
<b>2211</b>	<b>History of Sport in 20th Century America</b>	<b>U</b>	<b>3</b>
Explores intersection between sport and society in 20th century America. Emphasis on consumerism; race, class, gender & ethnicity; mass media; sport in a global world. Prereq: Not open to students with credit for EduPAES 211. GE historical study course.			
<b>2260</b>	<b>Sport in Contemporary America</b>	<b>U</b>	<b>3</b>
Examination of intersection of sport and society in contemporary America. Prereq: Not open to students with credit for EduPAES 260.			
<b>3189</b>	<b>Field Experience: Sport Industry</b>	<b>U</b>	<b>3</b>
Orientation to and professional experience in sports industry. Prereq: Enrollment in Sport Industry major. Not open to students with credit for EduPAES 289.03.			
<b>3193</b>	<b>Independent Study: Sport Industry</b>	<b>U</b>	<b>1 - 12</b>
Independent study in Sport Industry. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>3208</b>	<b>The Sport Industry</b>	<b>U</b>	<b>3</b>
Examination of the Sport Industry. Prereq: Major in Sport Industry.			
<b>3550</b>	<b>Entertainment &amp; Brand Licensing in Sport, Fashion, and Hospitality Industries</b>	<b>U</b>	<b>3</b>
This course will provide the student with a basic introduction into the world of sport and entertainment brand licensing. The licensing of brands, characters, sports team names, college logos and artwork, often called "merchandising," has become a huge business; the course will take students through the various steps of identifying, protecting, and conducting a licensing program. Prereq: Enrollment in Sport Industry, Fashion and Retail Studies, or Hospitality Management Major.			
<b>3798</b>	<b>The European Model of Sports</b>	<b>U</b>	<b>3</b>
The European Model of Sport is a study abroad program that takes students on a seminar through Europe, giving them a unique firsthand experience in international sports. The course is designed to introduce students to the European model of sport management, marketing, and sports law; and to provide students with an understanding of the changing context for sport in a global society. Scheduling priority given to Sport Industry majors. Repeatable to a maximum of 6 cr hrs.			
<b>4191</b>	<b>Internship: Sport Industry</b>	<b>U</b>	<b>6</b>
Directed and supervised experience in a Sport Industry setting. Prereq: 3189 or EduPAES 2189.21. Not open to students with credit for EduPAES 489.05 or 589.03. This course is graded S/U.			
<b>4245</b>	<b>Leadership &amp; Programming in Sports Industry</b>	<b>U</b>	<b>3</b>
Methods of leadership and programming in sport industry organizations. Prereq: Major in Sport Industry or minor in Coaching Education.			
<b>4411</b>	<b>College Sport</b>	<b>U</b>	<b>3</b>
Historical development of college sport; influence of race, class and gender; mass media; consumer society; place of college sport in American higher education and culture. Prereq: Enrollment in Sport Industry major. Not open to students with credit for EduPAES 411.			
<b>4509</b>	<b>Sport Marketing and Promotion</b>	<b>U</b>	<b>3</b>
Issues related to the marketing and promotion of sport. Prereq: Major in Sport Industry or minor in Coaching Education.			
<b>4607</b>	<b>Legal Aspects of Sport</b>	<b>U</b>	<b>3</b>
Introduction to the American legal system and major cases/laws which make up sports law. Prereq: Major in Sport Industry or Coaching Education minor. Not open to students with credit for EduPAES 607.			
<b>4615</b>	<b>Sport and Social Values</b>	<b>U</b>	<b>3</b>
Role of social values play in sport, with emphasis on civic virtue; fair play and social justice; violence/abuses in sport. Prereq: Enrollment in Sport Industry major. Not open to students with credit for EduPAES 615.			
<b>4900</b>	<b>Researching in Sports Industry</b>	<b>U</b>	<b>3</b>
Upper-level undergraduate class on various aspects of sport industry research methods that gives a general introduction to social research methods and will cover four broad topics: the foundations of sport industry research, research design, data collection, and data analysis. Prereq: Enrollment in Sport Industry program.			

<b>5610</b>	<b>Women's Sport History</b>	<b>U G</b>	<b>3</b>
Examines development of women's sport from primitive cultures to contemporary society. Prereq: Jr standing or above. Not open to students with credit for EduPAES 610.			
<b>5614</b>	<b>Sport and Sexuality</b>	<b>U G</b>	<b>3</b>
How conceptualization of sexuality shape and are shaped by sport. Prereq: Jr standing or above. Not open to students with credit for EduPAES 614.			
<b>5626</b>	<b>Sport and Popular Culture</b>	<b>U G</b>	<b>3</b>
Examines popular culture's influence on sport and sport as expression of popular culture. Prereq: Jr standing or above. Not open to students with credit for both EduPAES 626.01 and 626.02.			
<b>5630</b>	<b>Recreational Sport Leadership</b>	<b>U G</b>	<b>3</b>
A study of current issues, management techniques, and programming concepts associated with the administration of campus recreation programs. Prereq: Jr standing or above. Not open to students with credit for EduPAES 630.			
<b>6189</b>	<b>Practicum: Sport Management</b>	<b>G</b>	<b>3</b>
Opportunity to put professional theory and research into practice under supervision in University, school and agency settings. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>6191</b>	<b>Master's Internship/Practicum: Sport Management</b>	<b>G</b>	<b>3 - 8</b>
Full-time professional development experience at an approved sport worksite setting. Opportunity to apply theory and skills learned in class under direction of on-site supervisor. Prereq: Permission of instructor. This course is graded S/U.			
<b>6807</b>	<b>Sport Law</b>	<b>G</b>	<b>3</b>
Study of legal issues affecting the delivery of sport services; focus on liability in sport activities. Prereq: Grad standing. Not open to students with credit for EduPAES 807.			
<b>6808</b>	<b>Management of Sport Delivery Systems</b>	<b>G</b>	<b>3</b>
Application of contemporary management theories and techniques in the structures and processes of sport delivery systems. Prereq: Grad standing.			
<b>6809</b>	<b>Sport Marketing</b>	<b>G</b>	<b>3</b>
Examination and utilization of basic marketing principles in the areas of sport (collegiate and professional) recreation. Prereq: Grad standing. Not open to students with credit for EduPAES 809.			
<b>6837</b>	<b>Event and Facility Management for Sport Managers</b>	<b>G</b>	<b>3</b>
Examines the principles and practices of planning and managing sport events and facilities. Prereq: Not open to students with credit for EduPAES 837.			
<b>6842</b>	<b>Business of College Sports</b>	<b>G</b>	<b>3</b>
Provides business analysis of intercollegiate athletics, including an in depth look at OSU athletic program; develop understanding or college sports administration, educational, business missions. Prereq: Sport Management major, and Grad standing; or permission of instructor. Not open to students with credit for EduPAES 842 or BusMHR 870. Cross-listed in BusMHR 7605.			
<b>7897</b>	<b>Colloquium in Sport Management</b>	<b>G</b>	<b>3</b>
Current research in Sport Management. Prereq: Sport Management major, and Grad standing; or permission of instructor. Repeatable to a maximum of 15 cr hrs.			
<b>7906</b>	<b>Understanding Sport Consumers: Theoretical Perspectives</b>	<b>G</b>	<b>3</b>
Acquaints students with issues related to sport consumers' behaviors by discussing pertinent theories and implications to sport consumer behavior. Prereq: Grad standing, and Sport Management major; or permission of instructor. Not open to students with credit for EduPAES 906.			
<b>8193</b>	<b>Advanced Individual Studies: Sport Management</b>	<b>G</b>	<b>1 - 12</b>
Advanced independent study in Sport Management. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8194</b>	<b>Advanced Group Studies: Sport Management</b>	<b>G</b>	<b>1 - 5</b>
Advanced group studies in Sports Management. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8951</b>	<b>Theoretical Approaches to Sport Organizations</b>	<b>G</b>	<b>3</b>
Organization and management theory applied to sport organizations. Prereq: Major in Sport Management, and Grad standing; or permission of instructor. Not open to students with credit for EduPAES 951 or 952. Repeatable to a maximum of 6 cr hrs.			
<b>8998</b>	<b>Research: Sport Management</b>	<b>G</b>	<b>1 - 4</b>
Research topics to be determined through discussion with advisor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8999</b>	<b>Dissertation/Thesis Research: Sport Management</b>	<b>G</b>	<b>1 - 9</b>
Research for thesis or dissertation purposes only. Prereq: Post-candidacy and Doct standing in Sport Management, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			

## Korean

**1101.01 Level One Korean I: Classroom Track U 4**

Standard modern Korean: development of listening and speaking skills; basic grammar; reading and writing of the Korean script (hangul). Classroom Track. Not open to native speakers or students with 3+ years at high school level.  
Prereq: Not open to students with credit for 101.01 or 102.01. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1101.51 Level One Korean I: Individualized Instruction U 1 - 4**

Standard modern Korean: development of listening and speaking skills; basic grammar; reading and writing of the Korean script (hangul). Individualized Track.  
Prereq: Not open to students with credit for 101.51, 102.51, or to native speakers of this language through regular course enrollment or EM credit; or to students with 3 or more years of study in this language in high school, except by permission of dept. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1101.02 Level One Korean II: Classroom Track U 4**

Continuation of 1101. Classroom Track.  
Prereq: 1101.01 or 1101.02, or 4 cr hrs of 1101.51 or equivalent. Not open to students with credit for 102.01, 103.01, or to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102.51 Level One Korean II: Individualized Instruction U 1 - 4**

Continuation of 1101. Individualized Track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement.  
Prereq: 1101.01 or 1101.02, or 4 cr hrs of 1101.51 or equiv. Advancement to the first credit in this course in the same semester as the completion of the 4th credit for 1101.51 requires registration for both courses, with permission of instructor. Not open to students with credit for 102.51, 103.51, or to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1103.01 Level Two Korean I: Classroom Track U 4**

Modern Korean intermediate level spoken communication, development of reading skills, and written composition. Classroom Track. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1102.01, 1102.02, 1102.03, 1102.05, 101.01, or 102.01, or 4 sem cr hrs of 1102.51, or equiv. Not open to students with credit for 104. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1103.51 Level Two Korean I: Individualized Track U 1 - 4**

Modern Korean intermediate level spoken communication, development of reading skills, and written composition. Individualized Track.  
Prereq: 1102.03, 1102.05, 1102.01, or 1102.02 or 4 cr hrs of 1102.51 or equivalent; and 101.51 and 102.51. Not open to students with credit for 103.51, 104.51, or to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**2102.01 Level Two Korean II: Classroom Track U 5**

Continuation of 1103.01.  
Prereq: 1103.01 or 1103.02, or 4 cr hrs of 1103.51 or equivalent. Not open to students with credit for 2102.02, 205, or 206; or native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit.

**2102.51 Level Two Korean II: Individualized Track U 1 - 5**

Continuation of 1103.01/1103.51.  
Prereq: 1103.01 or 1103.51, or permission of instructor. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is available for EM credit.

**2231 Elements of Korean Culture U 3**

A survey of the religion, history, customs, performing arts, fine arts, literature, and social institutions of the Korean people from the earliest era to the present. Taught in English.  
Prereq: Not open to students with credit for 231. GE cultures and ideas and diversity global studies course.

**2451 Korean Literature in Translation U 3**

A close examination of masterpieces in Korean literature across genres for students with no previous academic training in Korean literature. All readings and discussions in English; college-level English reading and writing required.  
Prereq: English 1110.01 (110), 1110.02, or 1110.03. Not open to students with credit for 251. GE lit or diversity global studies course.

**4101.01 Level Three Korean I: Classroom Track U 5**

Expanding oral and written proficiency in Korean; expansion of vocabulary and knowledge of Chinese characters. Classroom Track.  
Prereq: 2102 or equivalent with permission of instructor. Not open to students with credit for 507.01 or 508.01. This course is available for EM credit.

**4101.51 Level Three Korean I: Individualized Track U 1 - 5**

Expanding oral and written proficiency in Korean; expansion of vocabulary and knowledge of Chinese characters. Individualized Track. Progress is sequential from one cr hr to the next with a proficiency at the level of 80% required for advancement.  
Prereq: 2102 or equivalent with permission of instructor. Not open to students with credit for 507.51 or 508.51. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is available for EM credit.

**4102.01 Level Three Korean II: Classroom Track U 5**

Continuation of 4101. Classroom Track.  
Prereq: 4101 or equivalent with permission of instructor. Not open to students with credit for 508.01 or 509.01. This course is available for EM credit.

**4102.51 Level Three Korean II: Individualized Track U 1 - 5**

Continuation of 4101. Individualized Track. Progress is sequential from one cr hr to the next with a demonstrated proficiency at the level of 80% required for advancement.  
Prereq: 4101 or equivalent with permission of instructor. Advancement to the first credit in this course in the same semester as the completion of the 5th credit for 4102.51 requires registration for both courses, with permission of instructor. Not open to students with credit for 508.51 or 509.51. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is available for EM credit.

**4193 Individual Studies U 1 - 3**

Directed study to meet individual research needs of students in Korean studies. Not a substitute for regular language courses.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**4194 Group Studies U 1 - 3**

Group investigation of issues in Korean studies. Varying topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**4998 Undergraduate Research Project U 3**

Focused research toward completion of an original project.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**4998H Honors Undergraduate Research Project U 3**

Focused research toward completion of an original project.  
Prereq: Honors standing and/or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**4999 Undergraduate Research Thesis U 1 - 4**

Focused research toward completion of an original thesis.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 2 completions. This course is graded S/U.

**4999H Honors Undergraduate Research Thesis U 3**

Focused research toward completion of an original thesis.  
Prereq: Honors standing and/or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**5101 Level Four Korean I U G 3**

Level Four Korean; development of integrated language skills at an advanced level, formal and informal communication, and discussion of contemporary social issues.  
Prereq: 4102 or equivalent, or permission of instructor. Not open to students with credit for 610 or 611.

**5102 Level Four Korean II U G 3**

Continuation of 5101.  
Prereq: 5101 or equivalent, or permission of instructor. Not open to students with credit for 611 or 612.

**5103 Level Five Korean I U G 3**

Strengthening communication skills through oral and written reports of social and cultural issues; development of advanced proficiency in a variety of genres.  
Prereq: 5102 or equivalent, or permission of instructor.

**5256 Interdisciplinary Topics in Korean Politics and Society U G 3**

Interdisciplinary Korean studies course in the areas of social science, bridging Korean history, politics, gender, religion, philosophy, education, intercultural communication and international relations, etc. Taught in English.  
Repeatable to a maximum of 6 cr hrs.

**5315 Korean Language: Structure, Culture, and Communication U G 3**

A comprehensive survey of structural, cultural, and communicative aspects of the Korean language. Taught in English.  
Prereq: 1103, or equiv, or permission of instructor.

**5380 Korean Linguistics U G 3**

Examination of the phonology, syntax, lexicon, and writing system of the Korean language; some topics related to language use and acquisition.  
Prereq: 1103 or equivalent, or permission of instructor. Not open to students with credit for 680.

**5400 Performance Traditions of Korea** U G 3  
Cross-cultural and interdisciplinary exploration of cultural expressiveness in the context of Korean performance traditions; includes guided research, field work, ethnography and performance workshop.  
Prereq: 2231 or 2451, or Chinese or Japanese equivalents; or permission of instructor.  
Repeatable to a maximum of 9 cr hrs.

**5405 Korean Dramatic Tradition** U G 3  
Major works in the Korean dramatic tradition from ancient to contemporary eras. Includes historical and performative discourse, dramatic reading and enactment. Taught bilingually, sometimes in English and sometimes in Korean.  
Prereq: 2102.01 or 5 cr hrs of 2102.51 (205 and 206), English 1110 (110), or permission of instructor. Repeatable to a maximum of 6 cr hrs.

**5455 Interdisciplinary Courses in Korean Art, Music, Film, and Theatre** U G 3  
Interdisciplinary course in the history and criticism of Korean art, music, theatre, martial art, healing art and film with reference to their implications to humanity. Taught in English.  
Repeatable to a maximum of 6 cr hrs.

## Landscape Architecture

**1100 Landscape Architecture Survey** U 1  
Introduction to the University, the Knowlton School of Architecture and the professions of architecture, city and regional planning and landscape architecture.  
Prereq: Not open to students with credit for 1100E, 100, Arch 1100 (100), 1100E, 100H, CRPlan 1100 (100), 1100E, or any survey course. Cross-listed in Arch and CRPlan.

**2000 Introduction to Landscape Architecture** U 1  
Introduction to the profession of Landscape Architecture and the breadth of Landscape Architectural projects and practice.  
This course is graded S/U.

**2300 Outlines of the Built Environment** U 3  
Introduction to the disciplines of architecture and landscape architecture and planning with an emphasis on the physical artifact and its formal and cultural context.  
Prereq: Not open to students with credit for 1210, 2300E, Arch 1210, 2300, or 2300E. GE cultures and ideas course. Cross-listed in Arch.

**2300E Outlines of the Built Environment** U 3  
Introduction to the disciplines of architecture and landscape architecture and planning with an emphasis on the physical artifact and its formal and cultural context. Honors Section.  
Prereq: Honors standing. Not open to students with credit for 200, 1210, 2300, Arch 1210 (200), 2300, or 2300E. GE cultures and ideas course. Cross-listed in Arch.

**2310 Introduction to Design** U 4  
Introduction to the design of the physical environment through the exploration of form, space, and order using drawing and modeling techniques.  
Prereq: Not open to students with credit for 1410, 151, Arch 1410 (202), or Arch 2310. Cross-listed in Arch.

**2367 Making and Meaning of the American Landscape** U 3  
Overview and interpretation of influential figures, policies, programs, cultural forces, and environmental factors that have shaped the American landscape since the Revolutionary War.  
Prereq: English 1110 (111) or 110, or equiv. Not open to students with credit for 367 or NatRes 367. GE writing and comm: level 2 and cultures and ideas course.

**2367E Making and Meaning of the American Landscape** U 3  
Overview and interpretation of influential figures, policies, programs, cultural forces, and environmental factors that have shaped the American landscape since the Revolutionary War.  
Prereq: Honors standing, and English 1110 (111) or 110, or equiv. Not open to students with credit for 367 or NatRes 367. GE writing and comm: level 2 and cultures and ideas course.

**2410 Landscape Architecture Media I** U 3  
This course introduces students to tools for communicating concepts, designs and processes of landscape architecture. Working with both analog and digital methods of representation, students learn to make visible their analyses and solutions. Provides a foundation in fundamental digital tools, hand sketching and hybrid methods of representation that convey temporality and environmental phenomena.  
Concur: 2920.

**2420 Ecology/Technology I** U 3  
This course provides an introduction to landscape materials by studying the qualities, characteristics, and dynamic functions of plants, soils, and water. Emphasis is placed on ecological approach to plant communities and landscape ecology. Topics include fundamentals of site grading, stormwater management, and planting design as well as an introduction to site detailing/construction.  
Concur: 2920.

**2600 Outlines of Landscape Architecture: Visual Literacy in the Built Environment** U 3  
Overview of patterns and processes of human design on land in relation to environmental, economic, and socio-cultural forces, with an emphasis on interpretation of visual landscape change.  
Prereq: Not open to students with credit for 201. GE VPA course.

**2600E Outlines of Landscape Architecture: Visual Literacy in the Built Environment** U 3

Overview of patterns and processes of human design on land in relation to environmental, economic, and socio-cultural forces, with an emphasis on interpretation of visual landscape change. Honors section.  
Prereq: Honors standing. Not open to students with credit for 201. GE VPA course.

**2780 Landscape Architecture Topics Seminar** U 3  
Discussion-based undergraduate course focusing on topics in contemporary landscape practice and research.  
Repeatable to a maximum of 6 cr hrs.

**2920 Design Studio II: Site Dynamics** U 6  
Introduction to basic principles and qualities of landscape architectural design, with a focus on the dynamic interaction of environment and people at site scale within the typological framework of gardens and parks.  
Prereq: Enrollment in LArch major. Not open to students with credit for 252.

**2930 Design Studio III: Social Dynamics** U 6  
Continuation of the second-year Landscape Architecture design studio sequence, with a focus on urban and suburban sites within the typological framework of campuses, complexes and communities.  
Prereq: 2920 (252). Not open to students with credit for 254.

**3194 Group Studies in Landscape Architecture** U 1 - 15  
Group-based study of landscape architecture topics within the frame of an instructor guided course.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.

**3430 Landscape Architecture Media II** U 3  
This course reinforces the foundational study of digital landscape representation with an emphasis on mapping and physical modeling. Employing geographic information systems and digital modeling programs, students develop two- and three-dimensional strategies for representing dynamic landscape processes at a range of geospatial scales.  
Concur: 2930.

**3440 Ecology/Technology II** U 3  
This course reinforces the foundational study of landscape materials and ecological dynamics with an emphasis on landscapes of the built environment. Specific attention is given to contemporary and sustainable techniques of site construction and landscape detailing.  
Concur: 2930.

**3940 Design Studio IV: Landscape Ecology & Planning** U 6  
Synthesis of landscape ecology and urban ecology principles with landscape planning and design at the district, watershed and/or regional scale, with a focus on integration of advanced inventory and analysis methodologies.  
Prereq: 2930 (254). Not open to students with credit for 633.

**3950 Design Studio V: Design in Detail** U 6  
Processes and techniques of design development, detailing and documentation, with a focus on sustainable design practices.  
Prereq: 3940 (633 and 356). Not open to students with credit for 658.

**4193 Independent Studies in Landscape Architecture** U 1 - 6  
For students who wish to pursue special independent studies in landscape architecture, with the guidance of an advisor/instructor.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 8 completions. This course is graded S/U.

**4194 Group Studies in Landscape Architecture** U 1 - 4  
For group-based study of landscape architecture topics within the frame of an instructor guided course.  
Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 8 completions.

**4410 Advanced Landscape Technologies Seminar** U 3  
Advanced topics in landscape technologies.  
Repeatable to a maximum of 9 cr hrs.

**4450 Advanced Landscape Media Seminar** U 3  
Advanced topics in landscape media.  
Repeatable to a maximum of 9 cr hrs.

**4780 Undergraduate Research Methods** U 3  
Quantitative, qualitative and design methods for undergraduate level landscape architectural research.  
Prereq: Enrollment in major within the Knowlton School of Architecture.

**4780H Undergraduate Research Methods** U 3  
Quantitative, qualitative and design methods for undergraduate level landscape architectural research. Honors section.  
Prereq: Honors standing, and major within the Knowlton School of Architecture. Not open to students with credit for 740.

**4960 Design Studio VI: Urbanism** U 6  
Advanced landscape design and planning in relation to sustainable urbanism.  
Prereq: 3950 or 356. Not open to students with credit for 457.

## 284 Landscape Architecture

<b>4970</b>	<b>Design Studio VII: Synthesis</b>	<b>U</b>	<b>6</b>
Advanced landscape architectural research, design and planning synthesizing diverse scales, with an emphasis on interdisciplinary engagement. Prereq: 4960 or 658.			
<b>4999H</b>	<b>Honors Design Studio</b>	<b>U</b>	<b>6</b>
Allows for development of topical research/design projects with an interdisciplinary perspective. Prereq: Honors standing, and major within the Knowlton School of Architecture.			
<b>5191</b>	<b>Professional Experience in Landscape Architecture</b>	<b>U G</b>	<b>0</b>
Documentation of work experience in the field of landscape architecture or suitable related areas. Prereq: Permission of instructor. Repeatable to a maximum of 6 completions. This course is graded S/U.			
<b>5194.02</b>	<b>Group Studies in Landscape Architecture</b>	<b>U G</b>	<b>1 - 15</b>
For group-based study of landscape architecture topics within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 4 completions.			
<b>5367</b>	<b>Landscape Architecture Professional Practice</b>	<b>U G</b>	<b>3</b>
Overview of landscape architectural professional practice principles, standards and codes, with a focus on writing and communication. Prereq: Jr, Sr, or Grad standing, and enrollment in LArch major. Not open to students with credit for 663			
<b>5610</b>	<b>History/Theory I</b>	<b>U G</b>	<b>3</b>
This course offers a global survey ranging from prehistoric settlements to the formation of the modern landscape profession in the 19th century. It assembles a foundation for thinking through landscape with approaches from architecture, art history, and archaeology, examining cultural and designed landscapes through common technological and cultural frameworks.			
<b>5610E</b>	<b>History/Theory I</b>	<b>U G</b>	<b>3</b>
This course offers a global survey ranging from prehistoric settlements to the formation of the modern landscape profession in the 19th century. It assembles a foundation for thinking through landscape with approaches from architecture, art history, and archaeology, examining cultural and designed landscapes through common technological and cultural frameworks. Prereq: Honors standing.			
<b>5620</b>	<b>History/Theory II</b>	<b>U G</b>	<b>3</b>
The history and theory sequence engages the disciplines of urban design, planning, and infrastructure, draws on architectural and art history, and discusses the cultural as well as the designed landscape. Landscape History and Theory 2 focuses on the modern period, from the mid 19th-century onward, and the forces that shaped our built environment.			
<b>5620E</b>	<b>History/Theory II</b>	<b>U G</b>	<b>3</b>
The history and theory sequence engages the disciplines of urban design, planning, and infrastructure, draws on architectural and art history, and discusses the cultural as well as the designed landscape. Landscape History and Theory 2 focuses on the modern period, from the mid 19th-century onward, and the forces that shaped our built environment. Prereq: Honors standing.			
<b>5630</b>	<b>Advanced Topics in History/Theory</b>	<b>U G</b>	<b>3</b>
The final course in the history and theory sequence focuses on specific themes of landscape architecture and planning, both historical and contemporary. Repeatable to a maximum of 9 or hrs.			
<b>5630E</b>	<b>Advanced Topics in History/Theory</b>	<b>U G</b>	<b>3</b>
The final course in the history and theory sequence focuses on specific themes of landscape architecture and planning, both historical and contemporary. Prereq: Honors standing. Repeatable to a maximum of 9 or hrs.			
<b>5798</b>	<b>Study Tour in Landscape Architecture</b>	<b>U G</b>	<b>1 - 15</b>
Program offering opportunity for guided travel, field study and on-site investigation in the United States and abroad. Repeatable to a maximum of 45 or hrs or 3 completions.			
<b>5880</b>	<b>Interdepartmental Seminar</b>	<b>U G</b>	<b>1 - 15</b>
Interdepartmental seminar; topics to be announced. Repeatable to a maximum of 15 or hrs or 5 completions. Cross-listed in CRPlan and Arch.			
<b>5960</b>	<b>Design Competition</b>	<b>U G</b>	<b>1 - 6</b>
Learn how to work in interdisciplinary teams to develop design proposals to solve problems in the natural or built environment. Prereq: Jr, Sr, or Grad standing. Repeatable to a maximum of 9 or hrs or 3 completions. Cross-listed in Arch and CRPlan.			
<b>6194</b>	<b>Group Studies in Landscape Architecture</b>	<b>G</b>	<b>1 - 15</b>
For group-based study of landscape architecture topics within the frame of an instructor guided course. Prereq: Grad standing and permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions.			

<b>6410</b>	<b>Landscape Architecture Media I</b>	<b>G</b>	<b>3</b>
This course introduces students to tools for communicating concepts, designs, and processes of landscape architecture. Working with both analog and digital methods of representation, students learn to make visible their analyses and solutions. Provides a foundation in fundamental digital tools, hand sketching, and hybrid methods of representation that convey temporality and environmental phenomena. Prereq: Grad standing. Not open to students with credit for 670.			
<b>6420</b>	<b>Ecology/Technology I</b>	<b>G</b>	<b>3</b>
This course provides an introduction to landscape materials by studying the qualities, characteristics, and dynamic functions of plants, soils, and water. Emphasis is placed on ecological approach to plant communities and landscape ecology. Topics include fundamentals of site grading, stormwater management, and planting design as well as an introduction to site detailing/construction.			
<b>6430</b>	<b>Landscape Architecture Media II</b>	<b>G</b>	<b>3</b>
This course reinforces the foundational study of digital landscape representation with an emphasis on mapping and physical modeling. Employing geographic information systems and digital modeling programs, students develop two- and three-dimensional strategies for representing dynamic landscape processes at a range of geospatial scales. Prereq: 6420, and Grad standing. Not open to students with credit for 620, 622, 626, 670, 672, and 702.			
<b>6440</b>	<b>Ecology/Technology II</b>	<b>G</b>	<b>3</b>
This course reinforces the foundational study of landscape materials and ecological dynamics with an emphasis on landscapes of the built environment. Specific attention is given to contemporary and sustainable techniques of site construction and landscape detailing.			
<b>6600</b>	<b>Outlines of Landscape Architecture: Visual Literacy in the Built Environment</b>	<b>G</b>	<b>3</b>
This lecture course surveys the world of contemporary landscape architecture. Through study of works and texts, as well as design processes, students establish an understanding of landscape architecture as an applied activity and a sphere of research. Prereq: Grad standing, or permission of instructor.			
<b>6667</b>	<b>Making and Meaning of the American Landscape</b>	<b>G</b>	<b>3</b>
Overview and interpretation of influential figures, policies, programs, cultural forces, and environmental factors that have shaped the American landscape since the Revolutionary War. Prereq: Grad standing, or permission of instructor.			
<b>6880</b>	<b>Interdepartmental Seminar</b>	<b>G</b>	<b>1 - 15</b>
Interdepartmental seminar; topics to be announced. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. Cross-listed in CRPlan and Arch.			
<b>6910</b>	<b>Design Studio I: Site Design</b>	<b>G</b>	<b>6</b>
Introductory design studio with a focus on design process at the site scale. Prereq: Grad standing. Not open to students with credit for 640.			
<b>6920</b>	<b>Design Studio II: Dynamic Systems</b>	<b>G</b>	<b>6</b>
Synthesis of landscape ecology and site planning principles at the community and/or watershed scale, with a focus on integration of advanced inventory and analysis methodologies. Prereq: 6910, and Grad standing. Not open to students with credit for 642 or 644.			
<b>6999</b>	<b>Thesis in Landscape Architecture</b>	<b>G</b>	<b>1 - 8</b>
Individual thesis development under guidance of advisor. Prereq: Permission of instructor. Repeatable. This course is progress graded (S/U).			
<b>7193</b>	<b>Independent Studies in Landscape Architecture</b>	<b>G</b>	<b>1 - 6</b>
For students who wish to pursue independent studies in landscape architecture, with the guidance of an advisor/instructor. Prereq: Permission of instructor. Repeatable to a maximum of 8 or hrs or 8 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Landscape Architecture</b>	<b>G</b>	<b>1 - 4</b>
For group-based study of landscape architecture topics within the frame of an instructor guided course. Prereq: Permission of instructor. Repeatable to a maximum of 8 or hrs or 8 completions.			
<b>7410</b>	<b>Advanced Landscape Technologies Seminar</b>	<b>G</b>	<b>3</b>
Advanced topics in landscape technologies. Repeatable to a maximum of 9 or hrs.			
<b>7450</b>	<b>Advanced Landscape Media Seminar</b>	<b>G</b>	<b>3</b>
Advanced topics in landscape media. Repeatable to a maximum of 9 or hrs.			
<b>7600S</b>	<b>Graduate Landscape Topics in Research &amp; Theory</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in graduate research and theory. Prereq: 7780 (740). Repeatable to a maximum of 12 or hrs or 4 completions.			
<b>7630</b>	<b>Advanced Landscape History &amp; Theory Seminar</b>	<b>G</b>	<b>3</b>
Advanced topics in landscape history and theory. Repeatable to a maximum of 9 or hrs.			

## Landscape Architecture 285

**7780 Research Methods in Landscape Architecture** G 3

Quantitative, qualitative and design methods for graduate level landscape architectural research and documentation.  
Prereq: Grad standing. Not open to students with credit for 740.

**7890 Seminar in Landscape Architecture** G 3

Advanced topics in landscape architectural practice, theory and research.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**7930 Design Studio III: Urban Landscape** G 8

Design of the urban environment in relation to sustainable urbanism principles and practices.  
Prereq: 6920, and Grad standing. Not open to students with credit for 754. Repeatable to a maximum of 16 cr hrs.

**7940 Design Studio IV: Global Issues** G 8

Advanced graduate landscape architectural research, design and planning synthesizing diverse scales, with an emphasis on international and interdisciplinary engagement.  
Prereq: 7930, and Grad standing. Not open to students with credit for 750 and 752. Repeatable to a maximum of 16 cr hrs.

**7950 Design Studio V: Design in Detail** G 8

Processes and techniques of landscape architectural design development, detailing and documentation, with a focus on sustainable design practices.  
Prereq: 7940, and Grad standing. Not open to students with credit for 658. Repeatable to a maximum of 16 cr hrs.

**8990 Research Prep Seminar** G 3

Seminar-based, guided development of individual research projects.  
Prereq: 7780, and Grad standing.

### Latin

**1101.01 Elementary Latin I** U 5

Elementary level introduction to the Latin language; the course begins the study of grammar and vocabulary. This course is a conversion of the entirety of 101.01 and the first half of 102.01. Not open to students with 3 or more years of high school study in this language, except by permission of department.  
This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102.01 Intermediate Latin I** U 5

Completion of Latin grammar and syntax; introduction to reading of Latin authors. This course is a conversion of the second half of 102.01 and the entirety of 103.  
Prereq: 1101 or equiv, or Placement Test, or permission of instructor. Not open to students with credit for 103. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102.55 Elementary Latin II: Accelerated** U 5

Second part of the accelerated introductory Latin sequence; leads to readings of Latin authors such as Ovid, Caesar, Cicero, or Pliny.  
Prereq: 1101.55. GE for lang course. FL Admis Cond course.

**1103 Intermediate Latin II** U 3

Selected readings in Latin literature.  
Prereq: 1102 (103), or Placement Test, or permission of instructor. GE for lang course.

**1890 Intensive Latin Workshop I** U 6

Intensive Latin workshop introducing grammar and vocabulary up to reading competence of Latin authors, covering the material offered in Latin 1101-1103.  
Su Sem. Concur: 1891. GE for lang course.

**1891 Intensive Latin Workshop II** U 6

Intensive Latin workshop covering the study of Latin authors at the 2000 level.  
Su Sem. Concur: 1890. Students may not register for any other course if they enroll in Latin 1891.

**2101 Cicero** U 3

Readings from Cicero's works, mainly the orations.  
Prereq: 1103 or 1890, or permission of instructor. Not open to students with credit for 210.

**2102 Vergil** U 3

Readings from Vergil's poetry.  
Prereq: 1103 or 1890, or permission of instructor. Not open to students with credit for 211.

**2104 Ovid** U 3

Readings from Ovid's narrative poetry (Metamorphoses and Fasti).  
Prereq: 1103 or 1890, or permission of instructor. Not open to students with credit for 213.

**2105 Latin Lyric** U 3

Readings from the poems of Catullus, Horace, Propertius, Tibullus, or the elegiac poems of Ovid.  
Prereq: 1103 or 1890, or permission of instructor. Not open to students with credit for 214.

**2106 Roman Comedy** U 3

Readings from the comedies of Plautus and Terence.  
Prereq: 1103 or 1890, or permission of instructor. Not open to students with credit for 206.

**2193 Individual Studies** U 1 - 9

Intermediate readings in Latin literature.  
Prereq: 1103 or equiv, and permission of department. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

**4998 Research** U 1 - 3

A program of study arranged for each student.  
Prereq: Sr standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**4998H Honors Research** U 1 - 3

A program of study arranged for each student.  
Prereq: Honors standing, and Sr standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**4999 Thesis Research** U 1 - 6

A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in Latin.  
Prereq: Jr standing or above, and enrollment in Classics Major; or permission of instructor or department. Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.

**4999H Honors Thesis Research** U 1 - 6

A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in Latin.  
Prereq: Honors standing, Jr standing or above, and enrollment in Classics Major; or permission of instructor or department. Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.

**5012 Roman Lyric and Erotic Poetry** U G 3

Readings from Catullus, Horatius, Propertius, Tibullus and others.  
Prereq: 2 courses more advanced than 1103, or Grad standing, or permission of instructor. Not open to students with credit for 614.

**5013 Roman Historians** U G 3

Readings from Sallust, Livy, Tacitus and other historians.  
Prereq: 2 courses more advanced than 1103, or Grad standing, or permission of instructor. Not open to students with credit for 617.

**5017 Roman Satire and Novel** U G 3

Readings from Roman satirical poetry and novels such as texts by Horatius, Juvenal, and Petronius.  
Prereq: 2 courses more advanced than 1103, or Grad standing, or permission of instructor. Not open to students with credit for 623.

**5193 Individual Studies** U G 1 - 9

A program of study arranged for each student, with specific passages for reading and topics from Roman literature, culture, or religion for investigation.  
Prereq: 4 courses more advanced than 1103 or 1890, or Grad standing. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 9

A program of study arranged for a small group of students, with specific passages for reading and topics from Roman literature, culture, or religion for investigation.  
Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

**5890 Intensive Latin Workshop I** U G 6

Intensive Latin workshop offered during the first six weeks of the Summer Term (12-wks) introducing grammar and vocabulary up to reading competence of Latin authors, covering the material offered in Latin 1101-1103. Credit will be awarded upon completion of 5891.  
Concur: 5891. Not open to students with credit for 1101 through 1103. This course is progress graded.

**5891 Intensive Latin Workshop II** U G 6

Intensive Latin workshop offered during the second half of the Summer Term (12-wks) covering the study of Latin authors at the 2000 level.  
Concur: 5890. Not open to students with credit for 671.

**6891 Latin Survey: Prose** G 5

A survey of Latin Prose Literature from its beginning to late antiquity focusing on language competence and literary history. Au Sem in alternation with Greek 6891.  
Prereq: 2 courses at the 2000-level, and permission of instructor, or Grad standing. Not open to students with credit for 701.

**6892 Latin Survey: Poetry** G 5

Survey of Latin Poetry from its beginning to late antiquity focusing on language competence and literary history. Sp Sem in alternation with Greek 6892.  
Prereq: 4 2000-level courses, and permission of instructor; or Grad standing. Not open to students with credit for 702.

**6893 Latin Prose Composition** G 3

Writing Latin prose.  
Prereq: Grad standing, or permission of instructor. Not open to students with credit for 802.

## 286 Latin

**6894 Latin Pedagogy** G 1

An introduction to the teaching of Latin, its methods and techniques. Taught Fall Semester when students typically begin their language teaching. Au Sem.  
Prereq: Grad standing. Not open to students with credit for 801. This course is graded S/U.

**7193 Individual Studies** G 1 - 9

Assigned reading of Latin authors or topics of Roman culture to help with language requirements or to prepare for exams.  
Au, Sp, Su Sems. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

**7890 Graduate Seminar, Latin** G 1 - 3

Research seminar on a topic of Latin literature and Roman culture. Repeatable to a maximum of 30 cr hrs or 15 completions.

**8999 Research** G 1 - 9

Readings and discussions connected with the writing of a thesis on a topic of Latin literature and culture.  
Au, Sp, Su Sems. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

## Law

**5796 Anglo-American Legal System** U L 1 - 6

Introduction to the Anglo-American Legal System for undergraduate students, taught summers at the University of Oxford, Oxford, England.  
Su Sem. Prereq: Acceptance into Oxford Summer Program. Repeatable to a maximum of 30 cr hrs or 30 completions.

**5797 Study at a Foreign Institution** U L 1 - 18

An opportunity for students to study at a foreign institution and receive OSU credit for work completed there. Student will pay OSU fees and fees in excess of OSU tuition, as well as all travel and subsistence costs.  
Prereq: Permission of department chairperson. Repeatable to a maximum of 54 cr hrs or 3 completions.

**6000 Tax Policy, Inequality and Distributive Justice** L 2

Tax Policy, Inequality and Distributive Justice studies the intersection of tax policy, the measurement and effects of economic inequality, and different views of distributive justice. This course is progress graded (S/U).

**6025 Native Americans and the Law** L 1 - 2

This course will introduce students to Federal Indian Law, tribal courts, and current legal issues in Indian Country. Students will study Native American law, culture, and history to gain a new perspective.  
This course is graded S/U.

**6050 U.S. Legal System and Legal Traditions** L 2 - 3

Overview of American law and the U.S. legal profession. Introduction to U.S. common law and statutory law.  
Prereq: Not open to students with credit for 630L.

**6055 Transactional Practice-LL.M.** L 3

Students will guide a fictitious company through a sophisticated transaction in the United States. During this representation, students will progress towards a procedural and substantive understanding of a U.S. transactional law practice, and the roles transactional lawyers play. This course satisfies component 5 of Moritz's Pathway One (for NY Bar Admission).  
Prereq: Enrollment in the Law Master of Laws (LL.M.) Program. Not open to students with credit for 7310.

**6060 Analysis of Client Files for LL.M.** L 2

Practice skills through a series of reading/writing based simulations. Each simulation will include a client file and short library of related materials. Students will review the designated materials and then complete an assigned task from a supervising attorney.  
Prereq: Enrollment in LL.M. program.

**6075 Loving v. Virginia: Critical Race/Sex Analysis** L 1

This course will provide a race/sex critical perspective of the Supreme Court's decision in Loving v. Virginia.  
This course is graded S/U.

**6100 Legal Regulation of Cryptotransactions** L 1

A look at the expanding world of cryptoassets and cryptotransactions and how the regulatory regimes of the world's governments are developing in response.  
This course is graded S/U.

**6101 Legal Analysis, Research and Writing for International Students** L 2 - 3

Analysis, research and writing for international students in the LL.M. program.

**6103 Legal Analysis and Writing** L 2 - 4

Introduces students to legal institutions and processes; methods of legal analysis; research sources and strategies; professionalism issues that confront new lawyers; and effective communication with clients, colleagues, and other audiences.  
Prereq: Not open to students with credit for 502L.

**6106 Legal Analysis and Writing II** L 3

Continues the work of Legal Analysis and Writing I using more sophisticated client problems and focusing on teaching students how to write like advocates.  
Prereq: Not open to students with credit for 511L.

**6109 Torts** L 4

Trespass to person; negligence; misrepresentation; nuisance, strict liability; liability insurance; alternatives to the fault system; and federal and state regulation of traffic safety.  
Prereq: Not open to students with credit for 504L.

**6112 Property** L 4

Acquisition, incidents, and transfer of ownership; possessory, concurrent, marital, and future interests, and contractual modification of these results.  
Prereq: Not open to students with credit for 505L.

**6115 Civil Procedure I** L 4

Civil procedure in state and federal courts; development of equity; abolition of common law forms of action; merger of law and equity; jurisdiction; venue.  
Prereq: Not open to students with credit for 507L.

**6118 Constitutional Law** L 4

Functional study of the major substantive, methodological, and federalistic limitations upon governmental power obtaining under practice of judicial review.  
Prereq: Not open to students with credit for 510L.

**6121 Contracts I** L 2 - 5

Remedies for breach; offer and acceptance; consideration; third party beneficiaries; assignment of rights and delegation of duties; conditions; impossibility and frustration; statute of frauds.  
Prereq: Not open to students with credit for 503L.

**6124 Legislation and Regulation** L 3

The lawmaking process; how the legislative process works; process by which statutes are enacted; how judges interpret the legislative product in theory and practice.

**6125 Justice, Democracy, and Law** L 2

An introductory exploration of the way in which the U.S. legal system relates to fundamental political values of fairness and popular sovereignty.  
This course is graded S/U.

**6127 Criminal Law** L 4

Justifications for regulating behavior through criminal sanctions, how laws are crafted to reach the intended behavior, and issues of culpability, mens rea, and excuses.  
Prereq: Not open to students with credit for 533L.

**6130 Legal Methods** L 2 - 6

Legal methods.  
Prereq: Permission of college. Not open to students with credit for 590L.

**6150 Trump and the Law** L 2

An exploration of the extent to which the presidency of Donald Trump poses distinctive challenges to longstanding values underlying America's legal system, including the rule of law itself.  
This course is graded S/U.

**6175 Law Practice Technology** L 1

This class will introduce students to a number of skills and concepts involved in using technology in practicing law.  
Prereq: Enrollment as a first-year Law student. This course is graded S/U.

**6200 Counseling Start-Up Companies** L 1

Provides practical skills to prepare students for counseling start-up companies.  
This course is graded S/U.

**6225 Legal Issues Surrounding the "MeToo" Campaign** L 1

This course will address legal issues involving sexual harassment and other forms of sexual misconduct in the workplace and in academic settings, from the perspective of feminist legal theory.  
This course is graded S/U.

**6250 Contracts Drafting Skills** L 2

The Contract Drafting Skills course is a problem-based, lawyering skills course. Students will be given opportunities to develop law practice skills relevant to drafting negotiated documents that include learning about a client's goals, researching the enforceability of contract clauses, and integrating the client's strategies into written contracts.  
This course is graded S/U.

**6275 Interviewing & Counseling** L 1

This course will introduce students to interviewing and counseling techniques used in the representation of clients.  
Prereq: 1L student standing, and enrollment in JD program. This course is graded S/U.

**6300 Researching Client Matters** L 1

Students will master research strategies and how to evaluate information and information resources to resolve questions integral to law practice.  
Prereq: Enrollment as a first-year Law student. This course is graded S/U.



<b>6325</b>	<b>Professional Essentials</b>	<b>L</b>	<b>1</b>
This course introduces students to five skills that are essential in law-related careers: strategic planning, interviewing, observing, networking, and communicating professionally. This course is graded S/U.			
<b>6350</b>	<b>Environmental Justice: Legal Theory and Practice</b>	<b>L</b>	<b>2</b>
Environmental Justice explores the intersectionality of environmental law, social justice, and environmental decision-making. This course is graded S/U.			
<b>6375</b>	<b>Dueling Systems of Law</b>	<b>L</b>	<b>1</b>
This course examines sovereignty by asking how law is generated by often competing communities and levels of governance. This course is graded S/U.			
<b>6425</b>	<b>Criminal Law in Practice</b>	<b>L</b>	<b>1</b>
This class will introduce students to a number of skills and policy considerations involved in practicing criminal law as a prosecutor or defense attorney. This course is graded S/U.			
<b>6450</b>	<b>Social Justice and the Law</b>	<b>L</b>	<b>2</b>
Students will be introduced to ideas about social justice and law, focusing on intersectional questions of race, class, gender, trans*, ethnicity, sexuality, disability, and religion, and the State. This course is graded S/U.			
<b>6475</b>	<b>Contractual Due Diligence</b>	<b>L</b>	<b>1</b>
Students will critically examine a variety of contracts to practice identifying problematic provisions and interpreting complex terms. This course is graded S/U.			
<b>6500</b>	<b>Introductory Accounting for Lawyers</b>	<b>L</b>	<b>1</b>
Students will learn to record basic financial transactions, create basic financial statements, and analyze complex financial statements. Students with more than two prior accounting courses may not take Introductory Accounting for Lawyers. Students who take Introductory Accounting for Lawyers may not later take Accounting and Finance for Lawyers. Prereq: Enrollment in the College of Law. This course is graded S/U.			
<b>6525</b>	<b>The Lawyer as Negotiator</b>	<b>L</b>	<b>1</b>
A lawyer's advocacy skills includes their ability to articulate a client's concerns, communicate their priorities, and creatively develop settlement options. In short, to negotiate. This course is graded S/U.			
<b>6550</b>	<b>Lawyers as Effective Communicators</b>	<b>L</b>	<b>1 - 2</b>
Using exercises based in improvisation, theatre, and active listening, this practical course builds a strong foundation for persuasive oral communication in a variety of legal settings. This course is graded S/U.			
<b>6575</b>	<b>Civil Rights Lawyering</b>	<b>L</b>	<b>2</b>
This course will help develop skills necessary to become effective civil rights lawyers, from creating a case and writing the complaint to building the record and working as part of a team. This course is graded S/U.			
<b>6600</b>	<b>Exploring the Lawyer-Client Relationship</b>	<b>L</b>	<b>1</b>
Introduction to skills, theory, and ethics that are central to the lawyer-client relationship, using simulation exercises to explore interviewing, counseling, decision making, and negotiating. This course is graded S/U.			
<b>6625</b>	<b>Introduction to Advertising Law</b>	<b>L</b>	<b>2</b>
First-year law students will learn the basics about truth-in-advertising laws, will get to examine litigated advertisements, and will understand the legal issues arising in false advertising lawsuits. This course is graded S/U.			
<b>6650</b>	<b>Reading the Law</b>	<b>L</b>	<b>1</b>
Develop the ability to effectively and efficiently read the various kinds of legal materials that they will encounter during law school and in practice. Read and analyze cases that have been shortened for casebook purposes, as well as cases as they appear in full in legal databases. This course is graded S/U.			
<b>6675</b>	<b>Literature, Rhetoric, and Persuasion</b>	<b>L</b>	<b>1</b>
In this course, students will explore the role of literary devices in the law; the use of rhetoric in the law; and the law as character in persuasive legal writing, judicial writing, and fiction. This course is graded S/U.			
<b>6700</b>	<b>Federal and State Clemency Decision-making</b>	<b>L</b>	<b>1</b>
Introduction to the legal, political and practical considerations influencing clemency decision-making by Governors and Presidents in the U.S. This course is graded S/U.			
<b>6725</b>	<b>Gender, Race and Tort Law</b>	<b>L</b>	<b>2</b>
This course re-examines several prominent areas of tort law to assess whether and how gender and race has permeated various legal doctrines and affected liability and the measure of damages. This course is graded S/U.			

<b>6750</b>	<b>Serial, Season Three: Criminal Law in Action</b>	<b>L</b>	<b>1</b>
Examine issues in the criminal justice that are revealed through the Serial podcast, Season Three. Students will visit the Franklin County Municipal Court and a juvenile detention facility. This course is graded S/U.			
<b>6775</b>	<b>Designing a Deal</b>	<b>L</b>	<b>1</b>
The course focuses on the ways lawyers can design a transaction to promote their clients' interests and how different designs can affect the parties' contractual pie. This course is graded S/U.			
<b>6800</b>	<b>Regulating Workers in the "Gig" Economy</b>	<b>L</b>	<b>2</b>
First-year law students will explore challenges associated with workers in the "gig" economy who are not generally covered as "employees" under federal and state employment laws. This course is graded S/U.			
<b>6825</b>	<b>Law and Political Economy</b>	<b>L</b>	<b>1</b>
This course introduces students to the study of Law and Political Economy - a perspective that situates law as a mechanism for promoting a democratic and egalitarian society. This course is graded S/U.			
<b>7000</b>	<b>Land Use Regulation</b>	<b>L</b>	<b>2</b>
The course will acquaint students with the legal basics for land use regulation, and explain the various regulatory tools in common usage.			
<b>7001</b>	<b>Basics of Elder Law</b>	<b>L</b>	<b>3</b>
Ethical issues in serving elderly clients, Medicare and Medicaid, Veteran's benefits, advanced directives and guardianship.			
<b>7002</b>	<b>Legal Analysis Workshop</b>	<b>L</b>	<b>2</b>
The course will address the two components of critical thinking: the cognitive ability and the disposition to exercise that ability. The course will actively engage students in the learning process, teaching them to take responsibility for their own learning and become self-regulated learners. Prereq: Permission of instructor. This course is graded S/U.			
<b>7003</b>	<b>Appellate Advocacy</b>	<b>L</b>	<b>2</b>
Procedural and substantive aspects of appellate practice; the student prepares a brief and presents an oral argument on the basis of assigned research materials. Prereq: 6103 and 6106. Not open to students with credit for 600L or 7310.			
<b>7004</b>	<b>To Be a GC: The Role of the Modern General Counsel</b>	<b>L</b>	<b>2</b>
This 2-credit course will teach law students, in legal and practical terms, what it means to be a General Counsel of an organization: the lead lawyer on the inside of the entity responsible for providing legal advice to the entity itself.			
<b>7005</b>	<b>Introduction to Legal Operations</b>	<b>L</b>	<b>2</b>
Legal Operations focuses on using people, process, and technology to deliver legal services to corporations with greater predictability, fewer errors, and lower cost.			
<b>7006</b>	<b>Advanced Legal Writing</b>	<b>L</b>	<b>2 - 3</b>
Training in the preparation of legal documents. Prereq: 6103, 6106, and 7003. Not open to students with credit for 601L.			
<b>7009</b>	<b>Advanced Legal Research</b>	<b>L</b>	<b>1 - 3</b>
Advanced topics in legal research. Prereq: 6103. Not open to students with credit for 602L. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>7100</b>	<b>Negotiation and Mediation Advocacy</b>	<b>L</b>	<b>1 - 2</b>
Negotiation and mediation techniques and practices. Prereq: Not open to students with credit for 701L.			
<b>7103</b>	<b>Issues in Arbitration</b>	<b>L</b>	<b>2 - 4</b>
An introduction to the arbitration process as well as an identification of controversial legal issues that have arisen in the arbitration context. Prereq: Not open to students with credit for 702L.			
<b>7106</b>	<b>Legal Negotiation and Settlement</b>	<b>L</b>	<b>2 - 4</b>
Study of the theory, law, and practice of transactional and settlement negotiations through actual negotiations by individual students in a variety of legal negotiation settings. Prereq: Not open to students with credit for 701L.			
<b>7109</b>	<b>International Commercial Arbitration &amp; Mediation</b>	<b>L</b>	<b>1 - 3</b>
Examines international arbitral procedures through the interaction of private contractual ordering, national law, and international treaties.			
<b>7112</b>	<b>Dispute Resolution Processes: Theory &amp; Practice</b>	<b>L</b>	<b>3</b>
Survey of dispute resolution processes including negotiation, mediation, arbitration and a variety of court-administered and extra-judicial settlement processes. Prereq: Not open to students with credit for 722L.			
<b>7113</b>	<b>Dispute Resolution in Employment</b>	<b>L</b>	<b>2</b>
This course offers skills and strategies for effective negotiation and mediation of employment disputes in non-union work environments.			

## 288 Law

### 7114 Franchise Agreements, Franchisor/Franchisee Relationships and the Growing Field of Franchise Law

An overview of franchise law from the General Counsel of Red Roof Inn. Learn the ins and outs of franchise agreements, franchisor/franchisee relationships and the associated legal issues.

### 7116 Dispute Resolution Survey

A study of process design principles, structural norms, and participant ethical standards shaping non-trial dispute resolution processes of negotiation, mediation, and arbitration and their hybrids.

### 7124 International Dispute Resolution

Examines procedures for resolving international disputes (negotiation, mediation, arbitration, judicial settlement), how they operate in contemporary disputes, and how law governs their use.

Prereq: Not open to students with credit for 7118 or 761L.

### 7126 Digital Dispute Systems

Digital Dispute Systems is an entry point for students seeking to consider how technology can assist with the resolution of legal and non-legal disputes.

### 7127 Designing Forums and Disputing Systems

Design new forums for particular disputes and for a series of disputes.

Prereq: Not open to students with credit for 772L.

### 7128 Designing Deals

Designing Deals examines how lawyers can help entities forge relationships that create value by merging advanced negotiation theory and simulations with analysis of real-world transactions.

### 7192 Public Interest and Government Externship

Conduct substantive legal work at government and non-profit placements, attend a class designed for externs, and fulfill specific academic requirements.

Repeatable to a maximum of 8 cr hrs or 3 completions. This course is graded S/U.

### 7193 Individual Studies

By special arrangement with the dean's office, special problems or projects may be taken for credit under the supervision of members of the faculty. The credit granted varies in proportion to the magnitude of the project.

Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.

### 7194 Group Studies

Group study in selected areas of the law.

Repeatable to a maximum of 24 cr hrs or 24 completions.

### 7200 Business Associations

Formation, financing, governance, and regulation of corporations and partnerships, and including problems under the federal securities laws.

Prereq: Not open to students with credit for 7203 (607.02L) or 607.01L.

### 7204 Business Basics for Lawyers

A one credit course for students who need a basic introduction into business language, incentives, and concepts.

### 7205 Business Torts and Unfair Competition

Business Torts and Unfair Competition is an advanced Torts course examining the role tort doctrine plays in a business or transactional context.

### 7209 Accounting for Lawyers

Problems of financial information in the context of business enterprise law and tax law.

Prereq: Not open to students with credit for 628L.

### 7210 Business Bankruptcy

Examines issues related to the business bankruptcy process, e.g. Chapter 11 reorganizations; claims and distribution; the automatic stay; adequate protection; setoff; transfers; among other topics.

### 7212 Banking Law

Study of development of banking activities, structure, and regulation; emphasis on state and federal banking laws; interinstitutional competition, and laws relating to geographic and product expansion.

Prereq: Not open to students with credit for 652L.

### 7213 Drafting Business Contracts

Provides students with a practical, hands-on introduction to the skills, techniques, and strategies that transactional business lawyers use when drafting business contracts.

### 7214 Contracts II

Covers advanced topics in contract law including pre-contractual negotiation, interpretation, performance, breach, enforcement defenses, third party rights, and transactional drafting.

### 7215 Securities

Analysis of Securities Act of 1933 and its pervasive effects on the issuance and transfers of securities.

Prereq: Not open to students with credit for 708L.

### 7218 Small Business and Entrepreneurial Finance

The financial problems faced by new and small businesses and how they intersect with the law.

### 7221 Corporate Finance

Capital formation and financial transactions.

Prereq: 7200 or 7203, and enrollment in Law; or permission of home academic program leadership and instructor. Not open to students with credit for 719L.

### 7222 Litigation Finance

This course addresses the market for legal claims, focusing primarily on the history, mechanics, and ethics of contingency-fee arrangements and third-party litigation funding.

### 7224 Mergers and Acquisitions

Application of state law, federal securities law, accounting principles, tax law, labor law, products liability law, environmental law, ERISA, antitrust law to mergers and acquisitions.

Prereq: Not open to students with credit for 721L.

### 7228 Regulatory Compliance

Analyzes the legal, ethical and policy foundations of regulatory compliance: the effort to translate statutory requirements into compliant corporate and individual behavior.

### 7230 International Business Transactions

Legal problems in transnational context arising from doing business abroad; investments; establishment; exchange controls; trade, licensing; extraterritoriality of regulatory legislation; international agreements; European Common Market.

Prereq: Not open to students with credit for 728L.

### 7233 Topics in Business law

Advanced topics concerning business enterprises.

Prereq: Not open to students with credit for 731L. Repeatable to a maximum of 12 cr hrs or 3 completions.

### 7234 Venture Capital and Entrepreneurial Dealmaking

This course examines the law and economics of venture capital and entrepreneurship focusing on the legal, economic and financial issues that legal professionals confront in this area.

### 7236 International Trade

Public international law framework and institutions that regulate trade and economic relations between nations.

Prereq: Not open to students with credit for 762L.

### 7280 Cannabiz: Exploring the "Legalized" Cannabis Industry from a Corporate Transactional Perspective

This course will be an exploration of the risks inherent in entrepreneurial businesses, and the ways in which entrepreneurs embrace the possibility of failure to pursue opportunity.

### 7285 Drug Crimes

Drug Crimes examines the policy and legal doctrine of drug criminalization, including coverage of the major drug offenses (possession, possession with intent to distribute, manufacture, and more).

### 7300 Commercial Paper

Types of commercial or negotiable paper; liability of parties; transfer and payment.

Prereq: Not open to students with credit for 605L.

### 7306 Sales

A study of the Uniform Commercial Code and other statutes bearing on the sale of goods in the American market.

Prereq: Not open to students with credit for 609L.

### 7309 Secured Transactions

Creation and perfection of security interests in goods and intangibles under the Uniform Commercial Code; priorities and remedies.

Prereq: Not open to students with credit for 7315 or 610L.

### 7310 Transactional Practice

Students will explore the procedural and substantive aspects of transactional practice; conduct original research and write a formal report (in multiple drafts); provide a formal oral presentation.

Prereq: Not open to students with credit for 7003.

### 7312 Debtor and Creditor Law

Debtor and creditor rights and remedies; emphasis on the Bankruptcy Code.

Prereq: Not open to students with credit for 7315 or 611L.

### 7321 Consumer Law

In-depth study of consumer rights and remedies as provided by the common law and federal and state statutes, with particular emphasis on the Federal Truth In Lending Act.

Prereq: Not open to students with credit for 657L.

### 7400 Advanced Topics on Criminal Law

Advanced topics on criminal law.

Prereq: Not open to students with credit for 633L. Repeatable to a maximum of 8 cr hrs or 4 completions.

<b>7401</b>	<b>Forensic Mental Health Law</b>	<b>L</b>	<b>2</b>
Discusses the civil and criminal aspects of mental health case law including involuntary civil commitment, competence to stand trial, and sanity at the time of the act.			
<b>7403</b>	<b>White Collar Crime</b>	<b>L</b>	<b>2 - 3</b>
Advanced substantive and procedural study of the federal criminal law enforcement system including RICO (Racketeer Influenced and Corrupt Organizations), mail fraud, drug offenses, tax enforcement, bank secrecy, and civil rights. Prereq: Not open to students with credit for 639L.			
<b>7405</b>	<b>Jurisprudence of ADR</b>	<b>L</b>	<b>3</b>
An examination of the fundamental normative values, principles and practices that shape the design and implementation of the negotiation, mediation, arbitration and other 'private' dispute resolution.			
<b>7406</b>	<b>Criminal Procedure: Investigations</b>	<b>L</b>	<b>2 - 4</b>
Legality of police practices to gather evidence; emphasis on interrogation and search and seizure; some reference to identification procedures and entrapment. Prereq: Not open to students with credit for 640L.			
<b>7409</b>	<b>Criminal Procedure: Adjudication</b>	<b>L</b>	<b>3</b>
Study of the criminal justice system emphasizing the right to counsel, bail, preliminary proceedings, grand jury, speedy trial, discovery, and pleas. Prereq: Not open to students with credit for 641L.			
<b>7500</b>	<b>Disability Discrimination</b>	<b>L</b>	<b>2 - 4</b>
Problem-oriented analysis of interaction between law and social science; emphasis on civil commitment, rights of disabled individuals, rights to community services (educational, residential, employment), and guardianship. Prereq: Not open to students with credit for 636L.			
<b>7503</b>	<b>First Amendment</b>	<b>L</b>	<b>2 - 3</b>
Advanced study of First Amendment precedent and doctrines governing the press, speech, association, and church-state relations. Prereq: Not open to students with credit for 733L.			
<b>7504</b>	<b>14th Amendment</b>	<b>L</b>	<b>2 - 3</b>
This advanced course in constitutional law will examine current, recurrent, and lasting topics of interest under the Fourteenth Amendment.			
<b>7507</b>	<b>Black Lives Matter: Law and Culture</b>	<b>L</b>	<b>3</b>
This course examines law as a site that has defined both blackness and humanness in relationship to African Americans. It also explores black culture to understand various responses to injustice. Cross-listed in AfAmASt.			
<b>7509</b>	<b>Special Education Advocacy</b>	<b>L</b>	<b>2 - 4</b>
The law of special education as provided in the Individuals with Disabilities Education Act. Prereq: Not open to students with credit for 757L.			
<b>7600</b>	<b>Children &amp; the Law</b>	<b>L</b>	<b>2 - 4</b>
The law applicable to children, including a study of agency and juvenile court treatment of dependent, neglected, abused, unruly, and delinquent children. Prereq: Not open to students with credit for 634L.			
<b>7602</b>	<b>Family &amp; Divorce Mediation</b>	<b>L</b>	<b>2</b>
Students will learn and practice skills and techniques used in family and divorce mediation and examine and apply relevant family law and mediation statutes and cases. Fundamentals of Mediation or Equivalent training (concurrent or prior mediation clinic satisfies prerequisite) required prior to enrollment.			
<b>7603</b>	<b>Family Law</b>	<b>L</b>	<b>3 - 4</b>
Legal concerns in marital relationships, including entrance into marriage, spousal relationships during marriage, annulment, divorce, custody, and post-divorce financial arrangements; legal concerns in quasi-marital living arrangements. Prereq: Not open to students with credit for 635L.			
<b>7606</b>	<b>Adoption Law</b>	<b>L</b>	<b>2 - 3</b>
Examines the adoption laws of the United States through their history and development. Prereq: Not open to students with credit for 638L.			
<b>7610</b>	<b>Sex, Sexuality &amp; the Law</b>	<b>L</b>	<b>2 - 3</b>
Surveys the various legal issues facing gay men, lesbians and bisexuals.			
<b>7611</b>	<b>Gender and the Law</b>	<b>L</b>	<b>2 - 3</b>
Explores various strands of feminist legal theory as well as the legal significance of gender in a variety of contexts, including family, employment, criminal, civil and family law.			
<b>7612</b>	<b>Critical Race Narratives</b>	<b>L</b>	<b>3</b>
Focuses on the relationship between narrative and law by using critical race theory to examine how race in America is a narrative of property and power.			
<b>7700</b>	<b>Human Rights</b>	<b>L</b>	<b>3</b>
International norms and procedures for the enforcement of the rights of individuals, including treaties and the activities of international agencies. Prereq: Not open to students with credit for 643L.			

<b>7712</b>	<b>International Law</b>	<b>L</b>	<b>2 - 4</b>
International agreements; status of states and individuals; recognition; jurisdiction; international claims; expropriation; human rights; sovereign immunity; war and peace; law of the sea; presidential congressional power. Prereq: Not open to students with credit for 619L.			
<b>7800</b>	<b>Copyright Law</b>	<b>L</b>	<b>2 - 4</b>
Area of the law that regulates and heavily affects the creation and distribution of many intangible goods that are extremely important for our economy and our culture: from books, to music, to movies, to software, and much more.			
<b>7803</b>	<b>Trademark</b>	<b>L</b>	<b>2 - 3</b>
An overview of issues in Trademark law. Prereq: Not open to students with credit for 626L.			
<b>7804</b>	<b>The Law of Cyberspace</b>	<b>L</b>	<b>2 - 3</b>
Allows students with varying backgrounds to confront the cutting-edge legal issues that arise from technological change and the Internet.			
<b>7806</b>	<b>Privacy</b>	<b>L</b>	<b>2 - 3</b>
Legal, technological, and political issues surrounding privacy concerns. Prereq: Not open to students with credit for 646L.			
<b>7807</b>	<b>National Security Law and Process</b>	<b>L</b>	<b>3</b>
Examines legal (international, constitutional, statutory, and administrative), process, policy, political, and personality angles of national security law and lawyering.			
<b>7809</b>	<b>Patent Law</b>	<b>L</b>	<b>2 - 3</b>
Fundamentals of substantive patent law relating to standards of patentability, patent claim interpretation and enforcement in patent litigation, and licensing. Prereq: Not open to students with credit for 737L.			
<b>7812</b>	<b>Patent Prosecution</b>	<b>L</b>	<b>2 - 3</b>
Patent Prosecution.			
<b>7814</b>	<b>International Intellectual Property</b>	<b>L</b>	<b>3</b>
The course will survey key international treaties, including TRIPS, and their implementation into domestic law. It will also examine use of the WTO Dispute Settlement System to resolve IP disputes.			
<b>7815</b>	<b>Introduction to Intellectual Property</b>	<b>L</b>	<b>2 - 3</b>
An introduction to the various forms of intellectual property law. Prereq: Not open to students with credit for 783L or for a combination of two or more of the following courses: 7803, 7809, 7800.			
<b>7816</b>	<b>Investment Management Law</b>	<b>L</b>	<b>3</b>
Regulations and obligations applicable to investment companies and advisers, including mutual funds, brokers and dealers, hedge funds and private equity funds. Prereq: 7200 (607.01L) or 7203.			
<b>8000</b>	<b>Trial Practice</b>	<b>L</b>	<b>2 - 4</b>
Forensic skills developed through actual trial advocacy by individual students in civil or criminal cases. Prereq: 8200, or permission of instructor. Not open to students with credit for 704L.			
<b>8002</b>	<b>Depositions</b>	<b>L</b>	<b>1</b>
Covers the procedure and problems associated with taking a deposition, including how to effectively take a deposition and integrate the information with other discovery mechanisms.			
<b>8005</b>	<b>Lawyering Skills Program</b>	<b>L</b>	<b>1 - 5</b>
Students may earn credit for their participation in the lawyering skills program. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			
<b>8008</b>	<b>Appellate Practice</b>	<b>L</b>	<b>1 - 4</b>
Procedural and substantive aspects of appellate practice; perfection of appeals; preparation of briefs and oral argument; participation by third-year students in various aspects of Lawyering Skills Program (Moot Court). Repeatable to a maximum of 4 cr hrs or 4 completions. This course is graded S/U.			
<b>8010.15</b>	<b>DC Ethics</b>	<b>L</b>	<b>2 - 3</b>
The ethics of lawyering in Washington, D.C. Prereq: Admission to the summer Washington D.C. program.			
<b>8015</b>	<b>Herman Moot Court Competition</b>	<b>L</b>	<b>1 - 4</b>
The Herman competition is a voluntary intramural appellate advocacy competition for second year students in the J.D. program. The Herman competition determines invitation to participate in one of the college's traveling moot court teams. Prereq: Not open to students with credit for 714L. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is graded S/U.			
<b>8020.01</b>	<b>Ohio State Law Journal</b>	<b>L</b>	<b>1 - 3</b>
Special studies covering diverse subjects of a legal nature participated in by the group selected for work on the Law Journal. Prereq: Selection for Law Journal by editors. Repeatable to a maximum of 5 cr hrs or 4 completions. This course is graded S/U.			

## 290 Law

<b>8020.02</b>	<b>Ohio State Journal of Criminal Law</b>	<b>L</b>	<b>1 - 3</b>
Ohio State Journal of Criminal Law. Prereq: Permission of instructor. Repeatable to a maximum of 5 cr hrs or 4 completions. This course is graded S/U.			
<b>8020.03</b>	<b>Ohio State Journal on Dispute Resolution</b>	<b>L</b>	<b>1 - 3</b>
Ohio State Journal on Dispute Resolution. Prereq: Students selected via announced selection process. Repeatable to a maximum of 6 cr hrs or 4 completions. This course is graded S/U.			
<b>8020.04</b>	<b>I/S: A Journal of Law and Policy for the Information Society</b>	<b>L</b>	<b>1 - 3</b>
I/S: A Journal of Law and Policy for the Information Society. Prereq: Students selected via announced selection process. Repeatable to a maximum of 5 cr hrs or 4 completions. This course is graded S/U.			
<b>8020.05</b>	<b>Ohio State Entrepreneurial Business Law Journal</b>	<b>L</b>	<b>1 - 3</b>
Ohio State Entrepreneurial Business Law Journal. Prereq: Students selected via announced selection process. Repeatable to a maximum of 6 cr hrs or 4 completions. This course is graded S/U.			
<b>8100</b>	<b>Employment Law</b>	<b>L</b>	<b>2 - 4</b>
State and federal regulation of the employment relationship with primary focus upon minimum wage and overtime compensation, workers' disability and unemployment compensation, safety and health, retirement and pension security, and wrongful discharge. Prereq: Not open to students with credit for 613L.			
<b>8103</b>	<b>Labor Law</b>	<b>L</b>	<b>2 - 5</b>
Federal regulation of labor-management relations focusing upon employee organizational and representational rights, selection of bargaining representative, collective bargaining process, contract administration and enforcement, and internal union affairs. Prereq: Not open to students with credit for 614L or 8103.01.			
<b>8103.01</b>	<b>Labor Law, Labor Arbitration and Collective Bargaining Negotiation</b>	<b>L</b>	<b>4</b>
This course will cover substantive labor law issues as well as the modern practice of labor law, including negotiating a collective bargaining agreement and arbitrating grievances. Prereq: Not open to those with credit for course 8103.			
<b>8104</b>	<b>Business Litigation</b>	<b>L</b>	<b>3</b>
The focus of the course will be on the liability of fiduciaries who serve as trustee for a trust engaged in the purchase or sale of company stock.			
<b>8106</b>	<b>Employee Benefits</b>	<b>L</b>	<b>3</b>
Federal regulation of employee benefits, both pension benefits and welfare benefits, primarily through the Employee Retirement Income Security Act of 1974. Prereq: Not open to students with credit for 725L.			
<b>8109</b>	<b>Employment Discrimination Law</b>	<b>L</b>	<b>2 - 4</b>
A constitutional and statutory study of federal and state laws that proscribe employment discrimination based upon race, color, religion, sex, national origin, age, and physical and mental handicap. Prereq: Not open to students with credit for 744L.			
<b>8189.01</b>	<b>Criminal Defense Clinic</b>	<b>L</b>	<b>4</b>
Advanced study and training in performance of legal services for the poor under supervision of clinical faculty and staff attorney. Development of the basic knowledge and skills of criminal law practice. Prereq: 8200, and Law Third Year standing.			
<b>8189.02</b>	<b>Civil Law Clinic</b>	<b>L</b>	<b>2 - 4</b>
Advanced study and training in performance of legal services for the poor under supervision of clinical faculty and staff attorney. Development of the basic knowledge and skills of civil law practice on behalf of the poor. Preferred prereq: 8200. Prereq: Law Third Year standing.			
<b>8189.03</b>	<b>Criminal Prosecution Clinic</b>	<b>L</b>	<b>4</b>
Students represent the City of Delaware in criminal cases, prosecuting cases such as domestic violence, sexual misconduct, drunk driving, and theft. Prereq: 8200. Not open to students with credit for 738.03L.			
<b>8189.04</b>	<b>Justice For Children Clinic</b>	<b>L</b>	<b>2 - 6</b>
Study of the intricacies of the juvenile intake process, difficulties of dealing with a total family situation involving child neglect or juvenile delinquency, and substantive legal problems of the juvenile area. Prereq: Not open to students with credit for 738.04L.			
<b>8189.05</b>	<b>Legislation Clinic</b>	<b>L</b>	<b>4</b>
Law students help Ohio legislators analyze legislative issues, examine other states approaches, and develop statutory (or other) responses that are appropriate for our state. Prereq: 6124, and Law Second or Third Year standing.			
<b>8189.06</b>	<b>Multi-party Mediation Clinic</b>	<b>L</b>	<b>4</b>
Examines the legal, ethical, and policy issues that arise when using the mediation process to resolve multi-party controversies. Prereq: Not open to students with credit for 8189.07.			

<b>8189.07</b>	<b>Mediation Clinic</b>	<b>L</b>	<b>4</b>
Examines legal, ethical, and policy issues surrounding mediation and to develop of mediation skills. Prereq: Not open to students with credit for 8189.06.			
<b>8189.08</b>	<b>Selected Legal Problems Clinic</b>	<b>L</b>	<b>1 - 4</b>
Topics will change as specially scheduled in any semester. Repeatable to a maximum of 8 cr hrs or 2 completions.			
<b>8189.09</b>	<b>Entrepreneurial Business Law Clinic</b>	<b>L</b>	<b>4</b>
This clinic allows students to represent entrepreneurs and emerging businesses in need of transactional legal assistance. Prereq: 7200, and Law Third Year standing.			
<b>8189.20</b>	<b>Judicial Externship</b>	<b>L</b>	<b>2 - 4</b>
Judicial externships for credit. Prereq: Faculty permission. This course is graded S/U.			
<b>8189.30</b>	<b>DC Externship</b>	<b>L</b>	<b>2 - 3</b>
Substantive externships in D.C. Prereq: Application to the Washington D.C. summer program.			
<b>8189.40</b>	<b>Regulatory Compliance Externship</b>	<b>L</b>	<b>3</b>
Provide opportunities for students to obtain hands-on experience with regulatory compliance issues facing The Ohio State University. Prereq: Permission of instructor. This course is graded S/U.			
<b>8200</b>	<b>Evidence</b>	<b>L</b>	<b>2 - 4</b>
Survey of rules of evidence; particularly demonstrative, testimonial, and circumstantial proof; qualification and examination of witnesses; privilege; relevancy; documents; hearsay rule and its exceptions. Prereq: Not open to students with credit for 603L.			
<b>8203</b>	<b>Civil Procedure II</b>	<b>L</b>	<b>3 - 5</b>
Examination of federal rules of civil procedure: pleading, joinder, class actions, discovery, disclosure, case management, adjudication without trial, jury selection, post-trial motions, and appellate review. Prereq: Not open to students with credit for 604L.			
<b>8206</b>	<b>Conflict of Laws</b>	<b>L</b>	<b>3 - 4</b>
Private law pertaining to jural relations containing one or more foreign elements; jurisdiction; foreign judgments; domicile; choice of law; torts; workmen's compensation acts; contracts; property; family law; decedents' estates. Prereq: Not open to students with credit for 706L.			
<b>8209</b>	<b>Federal Courts</b>	<b>L</b>	<b>3 - 4</b>
The federal judicial system; jurisdiction of the district courts, courts of appeals, and United States Supreme Court. Prereq: Not open to students with credit for 710L.			
<b>8210</b>	<b>Constitutional Litigation</b>	<b>L</b>	<b>3</b>
Advanced and applied constitutional law with a focus on how to litigate and defend constitutional claims against public officials and local governments.			
<b>8211</b>	<b>Sentencing Law &amp; Policy</b>	<b>L</b>	<b>2 - 3</b>
Reviews traditional theoretical justifications for punishments and examines in depth society's always-developing approach to the sentencing of criminal offenders.			
<b>8212</b>	<b>Pretrial Litigation</b>	<b>L</b>	<b>3 - 4</b>
Depositions and client interviews; drafting of interrogatories; case strategies. Prereq: Not open to students with credit for 739L.			
<b>8215</b>	<b>Remedies</b>	<b>L</b>	<b>2 - 4</b>
An integrated study of remedial theory and devices available in the context of torts, contracts and property law. Prereq: Not open to students with credit for 743L.			
<b>8218</b>	<b>Products Liability</b>	<b>L</b>	<b>3</b>
Examines the theories and defenses of those involved in the manufacturing and selling of products. Prereq: Not open to students with credit for 782L.			
<b>8300</b>	<b>Federal Antitrust Law</b>	<b>L</b>	<b>2 - 4</b>
Combinations in restraint of trade; monopolization, attempts and conspiracies to monopolize; mergers, patent antitrust problems, and price discrimination under Sherman, Clayton, and Federal Trade Commission acts. Prereq: Not open to students with credit for 623L.			
<b>8303</b>	<b>Immigration Law</b>	<b>L</b>	<b>3</b>
Law concerning persons who want to come to the United States on a temporary or permanent basis. Prereq: Not open to students with credit for 624L.			
<b>8306</b>	<b>Administrative Law</b>	<b>L</b>	<b>3 - 4</b>
A study of the creation, operation, and control of federal administrative agencies, emphasizing their legislative, investigative, and adjudicatory authority and its control through judicial review. Prereq: Not open to students with credit for 729L.			

<b>8308</b>	<b>Environmental Law Practicum</b>	<b>L</b>	<b>2</b>
This course uses a simulation-based curriculum to give students a sense of what environmental law practice is really like and teach them the skills required to practice successfully in this area. Prereq: 8309.			
<b>8309</b>	<b>Environmental Law</b>	<b>L</b>	<b>2 - 4</b>
Federal environmental legislation, regulations, and judicial interpretation, including Natural Environmental Policy Act, the Clean Air Act, the Clean Water Act, and the Solid Waste Act, as amended. Prereq: Not open to students with credit for 732L.			
<b>8310</b>	<b>Energy Law</b>	<b>L</b>	<b>3</b>
An introduction to domestic energy law, focusing on the legislative and regulatory framework for electricity and the challenges associated with diversification of energy sources.			
<b>8311</b>	<b>Climate Change Law</b>	<b>L</b>	<b>3</b>
Explores the legal, political, and scientific challenges involved in addressing and responding to climate change, including international strategies and U.S. law and policy.			
<b>8312</b>	<b>Election Law</b>	<b>L</b>	<b>3</b>
Examines the laws that govern political elections, including campaign finance rules, ballot access issues, and re-apportionment. Prereq: 6118. Not open to students with credit for 752L.			
<b>8315</b>	<b>Education Law</b>	<b>L</b>	<b>3</b>
An examination of the legal framework and issues of public education K-12. Prereq: Not open to students with credit for 753L.			
<b>8318</b>	<b>Law and the Presidency</b>	<b>L</b>	<b>3</b>
Examines the law that governs U.S. presidential power in both foreign and domestic affairs, and the President's interactions with Congress and the Judiciary. Prereq: Not open to students with credit for 756L.			
<b>8400</b>	<b>Interprofessional Education: Care of Patient/Client</b>	<b>L</b>	<b>1 - 2</b>
Focuses on ethical issues, changing professional/consumer rights, and Interprofessional cooperation; limited to students in education, law, medicine, nursing, social work, bio-medical sciences, and allied health professions. Prereq: Not open to students with credit for 700.01L.			
<b>8403</b>	<b>Ethical Issues</b>	<b>L</b>	<b>1 - 4</b>
Focuses on ethical issues, changing professional/consumer rights, and Interprofessional cooperation; limited to students in education, law, medicine, nursing, social work, bio-medical sciences, and allied health professions. Prereq: Not open to students with credit for 700.03L. This course is graded S/U.			
<b>8406</b>	<b>Professional Responsibility</b>	<b>L</b>	<b>1 - 2</b>
Legal and ethical problems of the legal profession and the practicing lawyer. Unauthorized practice, bar admission, group legal services, malpractice, professional organization, and discipline. Required course. Prereq: Not open to students with credit for 736.01L.			
<b>8409</b>	<b>Professional Responsibility: Extended</b>	<b>L</b>	<b>1 - 4</b>
Legal and ethical problems of the legal profession and the practicing lawyer. A more comprehensive presentation of unauthorized practice, bar admission, group legal services, malpractice, professional organization, and discipline. Prereq: Not open to students with credit for 736.02L.			
<b>8525</b>	<b>Introduction to the US Legal System</b>	<b>G</b>	<b>3</b>
This foundational course in the Master in the Study of Law (MSL) provides an introduction to the US legal system, including legal methodology and reasoning, sources of law, the adversary system, the legal profession, and the court system. Prereq: Not open to students enrolled in JD or LL.M programs.			
<b>8600</b>	<b>Real Estate Finance</b>	<b>L</b>	<b>2 - 4</b>
Introductory study of real estate financing, emphasizing mortgages, deeds of trust, installment land contracts, rights and remedies of borrowers and lenders, and contemporary financing innovations. Prereq: Not open to students with credit for 621L.			
<b>8603</b>	<b>Real Estate Development</b>	<b>L</b>	<b>2 - 4</b>
Overview of role that a lawyer plays during the development of a commercial real estate project. Prereq: Not open to students with credit for 645L.			
<b>8609</b>	<b>Commercial Leasing</b>	<b>L</b>	<b>3</b>
Business and legal considerations which drive the leasing of a commercial real estate project. Prereq: Not open to students with credit for 764L.			
<b>8700</b>	<b>Federal Income Taxation</b>	<b>L</b>	<b>3 - 5</b>
Gross income; deductions; credits; attribution; timing; sales and other dispositions of property; characterization of income and deductions. Prereq: Not open to students with credit for 606L.			

<b>8706</b>	<b>State and Local Taxation</b>	<b>L</b>	<b>2 - 3</b>
Legal problems arising in property, excise, income, and estate-inheritance taxation; tax administration and procedure. Prereq: Not open to students with credit for 622L.			
<b>8707</b>	<b>State and Local Government Law</b>	<b>L</b>	<b>3</b>
State and Local Government addresses major issues facing state and local governments and prepares students to practice law and influence policy at the state and local level. Graduate students in public policy and related fields are welcome to enroll.			
<b>8708</b>	<b>Biotechnology Law and Policy</b>	<b>L</b>	<b>3</b>
An interdisciplinary approach to examining many of the legal, business, ethical, and policy issues raised by the biotechnology industry.			
<b>8709</b>	<b>Wills, Trusts, Estates</b>	<b>L</b>	<b>2 - 4</b>
Gifts, wills, intestate succession, protection of spouse and other dependents, fiduciary administration, social security and other employee benefits, life insurance. Prereq: Not open to students with credit for 656L.			
<b>8712</b>	<b>Tax of Business Enterprise/Corporate Tax</b>	<b>L</b>	<b>3 - 4</b>
Taxation of organizations; operations; sales and liquidations; divisions and reorganizations. Prereq: 8700.			
<b>8715</b>	<b>International Taxation</b>	<b>L</b>	<b>2 - 3</b>
United States taxation of transnational transactions, including taxation of foreign entities operating in the United States and taxation of United States entities operating in foreign countries. Prereq: 8700. Not open to students with credit for 716L.			
<b>8796</b>	<b>Study at a Foreign Institution</b>	<b>L</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Written permission of the Dean. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>8797</b>	<b>Participation in a Foreign Exchange Program</b>	<b>L</b>	<b>1 - 15</b>
By participating in semester exchange programs, students may take up to 15 credits of law courses at partner institutions in Europe, Asia, and Latin America. Topics will vary based on course selection. Written permission of the Law Academic Affairs Committee is required for participation in non-ABA approved exchange programs. Repeatable to a maximum of 29 cr hrs or 4 completions. This course is graded S/U.			
<b>8800</b>	<b>Jurisprudence</b>	<b>L</b>	<b>2 - 4</b>
Jurisprudential thought as represented by general theories of or about law; assessment of leading legal doctrines; relationship to social control policy and to legal precepts. Prereq: Not open to students with credit for 620L.			
<b>8803</b>	<b>Law and Religion</b>	<b>L</b>	<b>2 - 4</b>
Examines the intersections of law and various religious manifestations. Prereq: Not open to students with credit for 642L.			
<b>8806</b>	<b>Advanced Constitutional Law</b>	<b>L</b>	<b>2 - 3</b>
Constitutional theory, with emphasis on competing views of judicial review and the judicial function; the methodologies and processes of constitutional decision making; and criteria for judicial justification. Prereq: Not open to students with credit for 658L.			
<b>8808</b>	<b>Health Care Agreements and Transactions</b>	<b>L</b>	<b>2</b>
Health care regulatory and industry features of agreements relating to physician employment, licensing and data management, long-term care residency, joint operating arrangements and joint ventures, mergers and acquisitions. Credit for 7200 preferred prior to enrollment.			
<b>8809</b>	<b>Health Law</b>	<b>L</b>	<b>2 - 4</b>
Selected issues in the practice of medicine; medical malpractice, ethical issues, regulation of the health care industry, and use of medical testimony and proof in litigation. Prereq: Not open to students with credit for 711L.			
<b>8810</b>	<b>Public Health Law</b>	<b>L</b>	<b>3</b>
Surveys the legal framework of government public health regulations, by examining the sources and limitations of the government's authority to address current policy issues.			
<b>8811</b>	<b>Food and Drug Law</b>	<b>L</b>	<b>3</b>
This course explores various FDA law and policy issues related to the regulation of food, drugs, biologics, devices, and tobacco products. Cross-listed in PubHHMP 7612.			
<b>8813</b>	<b>E-Discovery Law and Practice</b>	<b>L</b>	<b>1 - 3</b>
Presents an overview of e-discovery law, as well as an examination of its practical implications for modern commercial litigation and other contemporary practices areas.			
<b>8816</b>	<b>The Lawyer in the Community</b>	<b>L</b>	<b>3</b>
Examines the lawyer's relationship to the larger community in which s/he works and lives. It surveys traditional and nontraditional lawyering tools for serving communities and their needs.			
<b>8817</b>	<b>The Rule of Law in the Age of Legal Change</b>	<b>L</b>	<b>3</b>
This course will introduce students to "the rule of law" as part of a larger introduction to some of the major legal and policy changes being made by the Trump Administration.			

## 292 Law

**8818 Sports Law** L 2 - 4

Provides basic knowledge of relevant substantive law as well as appreciation of effect of applying general legal principles to a popular, scrutinized and mythologized subject.  
Prereq: Not open to students with credit for 758L.

**8821 Nonprofit Law** L 2 - 3

Examines the major aspects of governance and tax law issues affecting the nonprofit sector, particularly legal counsel, directors, trustees, employees, or volunteers.  
Prereq: Not open to students with credit for 766L.

**8824 Lawyers and the Media** L 2

Legal and ethical issues involved with making public statements about litigation and legal issues.

Prereq: Not open to students with credit for 771L.

**8827 Law and Economics** L 2 - 3

Economic analysis of legal opinions, including a review of how courts use economic analysis.  
Prereq: Not open to students with credit for 780L.

**8828 Oil and Gas Law** L 2 - 3

Studies the law governing oil and gas ownership and development. It will include a study of related property interests in oil and gas, basic leasing concepts and regulatory principles.

**8889 Topics in Law** L 1 - 5

Varied topics within the law area.

Prereq: Not open to students with credit for 797L. Repeatable to a maximum of 6 cr hrs or 3 completions.

**8896.02 Seminar: Supreme Court Litigation** L 2 - 3

The Supreme Court as an institution emphasizing its formal and informal norms and structures, and content of the law the Court makes.

**8896.06 Seminar: Ethics and ADR** L 2

Explores the intersection of traditional lawyer ethical codes with the new roles lawyers assume with alternative dispute resolution (ADR).

Prereq: Not open to students with credit for 796.15L.

**8896.08 Seminar: Law, History & Philosophy** L 2

The history of American law and legal institutions, and their relationship to society, from the Reconstruction era through recent past.

**8896.11 Seminar: Research Seminar in Law** L 2 - 3

Topics will change as specially scheduled in any semester.  
Repeatable to a maximum of 6 cr hrs or 3 completions.

**8896.12 Seminar: Sexual Violence and the Law** L 2

Examines various theories of sexuality -- both cross-sex and same-sex -- and how they sit in relation to violence, injury, and law.

Prereq: Not open to students with credit for 796.21L.

**8896.13 Seminar: Tax Topics** L 2 - 3

Variable topics including tax ethics and policy. This seminar requires as a prerequisite Federal Income Tax Law 8700.

Prereq: 8700. Not open to students with credit for 796.41L. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8896.17 Seminar: Consumer Law** L 2 - 3

Consumer credit; statutory and judicial regulation, with particular emphasis on the problems of the poor consumer.

Prereq: Not open to students with credit for 796.55L. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8896.18 Seminar: Topics in Election Law** L 2 - 3

Exploration of the lawyer's role in the political process; the relationship of political parties to the election process; and the interplay of legal requirements and the campaign and voting procedures.

Prereq: Not open to students with credit for 796.58L. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8896.19 Seminar: Evidence and Trial Practice** L 2

A host of evidentiary issues that challenge trial courts and litigants in the course of a trial.  
Prereq: Not open to students with credit for 796.20L.

**8896.21 Seminar: Topics In Intellectual Property** L 2 - 3

Exploration of current and emerging problems in the law of intellectual property.

Prereq: Not open to students with credit for 796.64L. Repeatable to a maximum of 6 cr hrs or 2 completions.

**8896.22 Seminar: Sexual Harassment** L 2

Focuses on sexual harassment in the employment setting and in academic settings.  
Prereq: Not open to students with credit for 796.67L.

**8896.24 Seminar: Constitutional Problems** L 2

Small group study and training in legal and non-legal research, expository writing, and various functions of the practicing lawyer. Advanced constitutional questions, including evolution of judicial review, intergovernmental relationships.

Prereq: Not open to students with credit for 796.03L. Repeatable to a maximum of 4 cr hrs.

**8896.25 Seminar: Law in Africa** L 2

Focuses on Africa, both the domestic law of the various countries of Africa, and international legal issues relating to Africa.

Prereq: Not open to students with credit for 796.04L.

**8896.26 Seminar: Critical Race Theory** L 2 - 3

Issues surrounding race and gender are critiqued in this course from a sociological, historical, political, economic and legal perspective.

**8896.27 Seminar: Middle East Conflict** L 2

The Israeli-Palestinian conflict: legal issues, positions of the parties, relevant treaties, activity of international agencies, procedures for settlement.

Prereq: Not open to students with credit for 796.06L.

**8896.30 Sem: Advanced Family Law** L 2

Perspectives on the field of Family Law, past, present and future.

Prereq: 7603 (635L).

**8896.33 Sem: Federal Death Penalty Habeas** L 2

Examines substantive and procedural issues in federal habeas corpus review of death penalty cases. Reviewing doctrine and practice, it tracks the development of the law to its modern form.

**8896.34 Sem: Doing Business in China** L 2

Covers basic forms of multinational companies doing business in China, examining foreign investment formations, corporate reorganizations, labor, tax, real estate, and dispute resolution.

**8896.36 Sem: Public Utilities** L 2

The course examines the regulation and deregulation of utilities including: competition, trading, consolidations, effects on public service obligations, and municipal power and cooperatives.

**8896.37 Sem: Money and Politics** L 2

This seminar addresses the role and regulation of money in politics, including the subjects of bribery, campaign finance, and lobbying.

**8896.38 Sem: Marijuana Law Policy & Reform** L 2

This seminar will examine the social and historical backdrop of intoxicant prohibition, and assess the legal reforms and political debates now surrounding the control and regulation of marijuana use.

**8896.39 Sem: Disability Discrimination** L 2

Surveys the employment, public accommodation and public entity provisions of the Americans with Disabilities Act. Students are required to conduct an accessibility negotiation.

**8896.40 Sem: Hot Money** L 2

Examines the appropriate regulation of investor funds that chase short-term trading gains in capital markets. Current financial news and events are at the forefront of class discussion.

**8896.41 Sem: Civil Rights** L 2

This seminar surveys the history of civil rights laws and issues in part by exploring the development of constitutional doctrines such as anti-discrimination, color blindness, and anti-subordination.

**8896.42 Sem: Race & Crime** L 2

This seminar examines questions relating to the myriad ways in which race intersects with the law and with the criminal justice system.

**8896.43 Sem: Jurisprudence** L 2

Explores fundamental questions that underlie our legal system by examining various perspectives on law, including natural law, positivism, legal realism, and critical legal perspectives.

**8896.44 Seminar: Education Law** L 2

Focuses primarily on K-12 education wherein students examine topics including school safety issues, protection of student privacy and freedom of expression, and the rights of educators.

**8896.45 Seminar: The Business of Law** L 2

Explores the business of law. Students will study how law firms historically have been structured and how they have evolved, and review and critique proposals for restructuring.

**8896.46 Sem: Lawyering and Social Movements** L 2

Examines the complex and dynamic relationship between law, lawyers, and social movements.

**8896.47 Sem: War Crimes Law** L 2

This seminar explores the lack of "rule of law" and its role in the conflicts in the Balkans focusing on the history and studying both international and domestic trials.

**8896.48 Sem: Disaster Law** L 2

This seminar explores the emerging field of disaster law, focusing on disaster prevention, emergency response, compensation & insurance, environmental protection, human rights, and community recovery.

**8896.50 Sem: Gender and the Law** L 2 - 3

This seminar explores various strands of feminist legal theory as well as the legal significance of gender in a variety of contexts, including family, employment, criminal, civil and family law.

<b>8896.51 Sem: Critical Race Narratives</b>	<b>L</b>	<b>2 - 3</b>
This seminar focuses on the relationship between narrative and law by using critical race theory to examine how race in America is a narrative of property and power.		
<b>8896.52 Sem: U.S. Supreme Court Decisionmaking</b>	<b>L</b>	<b>2</b>
The seminar considers theories of statutory and constitutional interpretation from the current court's perspective, examines Supreme Court practice and looks at key cases pending in the current term.		
<b>8896.53 Sem: International Intellectual Property</b>	<b>L</b>	<b>2</b>
The seminar will survey key international treaties, including TRIPS, and their implementation into domestic law. It will also examine use of the WTO Dispute Settlement System to resolve IP disputes.		
<b>8896.54 Sem: Critical Theory/Critical Lawyering</b>	<b>L</b>	<b>2</b>
This course introduces students to important strands of contemporary legal theory, including Critical Legal Studies, Critical Race, Feminist, Queer, Lat-crit, and Classcrit theories.		
<b>8896.55 Sem: Big Data Law and Policy</b>	<b>L</b>	<b>2</b>
The seminar will introduce big data; describe how it generates value; explain how it poses risks to cybersecurity, privacy and equal opportunity; and explore the laws and policies that govern it.		
<b>8896.56 Sem: State Constitutional Law</b>	<b>L</b>	<b>2</b>
This seminar explores the nature and significance of state constitutional law, its role in the fabric of American law, and the interaction between state and federal constitutional law.		
<b>8896.58 Sem: Progressive Era and Its Contemporary Relevance</b>	<b>L</b>	<b>2</b>
The Progressive Era (1890-1920) produced the most significant reform of American democracy of any period in US history. This seminar will study its successes (and failures) to see their relevance today.		
<b>8896.59 Sem: Section 1983: Police Misconduct and Prison Violations</b>	<b>L</b>	<b>2</b>
This course considers the origins, uses, and limits of section 1983 litigation in the contexts of police misconduct and prison violations.		
<b>8896.60 Sem: Transitional Justice</b>	<b>L</b>	<b>2</b>
This seminar will explore the diverse range of transitional justice mechanisms in post-conflict societies and compare and analyze them in view of various demands for justice.		
<b>8896.61 Sem: What's International Law For? Purposes and Values of the International Legal Order</b>	<b>L</b>	<b>2</b>
This seminar examines the overarching policy purposes animating and guiding the international legal order.		
<b>8896.62 Sem: Prisons, Police, and Borders</b>	<b>L</b>	<b>2</b>
The course will consider the historical, psycho-social, and legal foundations of prison, police, and borders, and the possibilities for reforms and alternatives.		
<b>8896.63 SEM: Contract Justice</b>	<b>L</b>	<b>2</b>
Contract Justice studies the relationship between contract law and various strands and theories of justice.		
<b>8896.64 Seminar: Disability Accessibility - From Testing to Websites</b>	<b>L</b>	<b>2</b>
This course will give students to an opportunity to learn about a range of accessibility issues including special education, physical accessibility, testing accommodations, website accessibility and arbitration issues under both the Americans with Disabilities Act and the Individuals with Disability Education Act.		
<b>8896.65 Jus Ad Bellum: Waging War in International Law</b>	<b>L</b>	<b>2</b>
Jus ad bellum is the sub-field of international law that governs the decision to wage war. It determines the situations in which it is lawful for states to resort to armed force.		
<b>8896.66 Seminar: Administrative Law in the Modern Administrative State</b>	<b>L</b>	<b>2</b>
This seminar explores the scholarly literature on advanced topics in administrative and regulatory practice as well as the theories and policies that motivate the modern regulatory state. Prereq: 6124.		
<b>8896.67 SEM: Surveillance and Secrecy</b>	<b>L</b>	<b>2</b>
Seminar exploring enduring, current, and emerging issues involving government surveillance and secrecy. Students will write short and/or long papers, and do presentations.		
<b>8896.68 Seminar: Labor and the Constitution</b>	<b>L</b>	<b>2</b>
This seminar explores the historical and contemporary constitutional treatment of labor, labor unions, and collective worker activity.		
<b>8896.69 Sem: Ethnic Conflict</b>	<b>L</b>	<b>2</b>
This seminar focuses on conflicts between ethnic groups. Emphasis is on legal institutions and other processes that may ameliorate ethnic conflict. A single research paper is required.		

<b>8896.70 Sem: Advanced Constitutional Law</b>	<b>L</b>	<b>2</b>
Different ways to read the U.S. Constitution. Readings, drawn from cases, law review articles, and books, offer students an opportunity to engage and analyze these forms of legal authority, while deepening their understanding and thinking about the role of the U.S. Supreme Court, including its powers of judicial review and supremacy, in our national constitutional scheme.		
<b>8896.71 Sem: Drug Law Enforcement &amp; Bill of Rights</b>	<b>L</b>	<b>2</b>
We examine how the historical enforcement of U.S. drug laws resulted in significant legal developments concerning defendants' rights, privacy, states' rights, property rights, and religious freedom.		
<b>8896.72 Sem: Federal Sentencing Law &amp; Policy</b>	<b>L</b>	<b>2</b>
Traditional theoretical justifications for punishments and examine in depth society's always-developing approach to the sentencing of criminal offenders.		
<b>8900 Transfer Credit</b>	<b>L</b>	<b>1 - 25</b>
Transfer Credit. Repeatable to a maximum of 31 cr hrs or 6 completions. This course is graded S/U.		
<b>8910 Enrollment in Law</b>	<b>L</b>	<b>0</b>
Enrollment in law, no credit. Repeatable to a maximum of 2 completions. This course is graded S/U.		
<b>8950 Professional Practice Skills Course</b>	<b>L</b>	<b>1 - 3</b>
Professional Practice series focus on specific lawyering skills and are taught by law faculty or distinguished adjuncts. Prereq: Not open to students with credit for 707.02L. Repeatable to a maximum of 9 cr hrs or 3 completions.		
<b>8953 Professional Practice Capstone Course</b>	<b>L</b>	<b>1 - 3</b>
Professional Practice Capstone series are taught by distinguished visitors and focus on real-world challenges faced by lawyers in particular areas, such as health law, international trade, or employment law. Prereq: Not open to students with credit for 707.01L. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.		
<b>8964 Lawyers as Leaders</b>	<b>L</b>	<b>2 - 3</b>
Combining theory, simulations and case studies, this course develops a descriptive and normative picture of leadership practices and challenges for lawyers. Prereq: Not open to students with credit for 783.		
<b>8990 American Legal History</b>	<b>L</b>	<b>2 - 3</b>
The history of American law from its colonial antecedents until the twentieth century, emphasizing the relationship between law and the changing social, political, and economic conditions. Prereq: Not open to students with credit for 627L.		

## Linguistics

<b>1100 The Basics of Language for Language Learners</b>	<b>U</b>	<b>3</b>
Important tools for becoming a successful foreign language learner; cross-cultural differences and similarities in language use, parts of speech, foreign sounds, typical mistakes, etc. GE soc sci indivs and groups and diversity global studies course.		
<b>1101 Human Voices</b>	<b>U</b>	<b>1</b>
Students will explore the acoustic properties of the human voice, including what makes voices unique, with the goal of understanding what makes the voices of ourselves, our friends and family, and famous actors and politicians distinctive, memorable, and recognizable. Prereq: Not open to students with credit for ArtsSci 1138.xx (Famous Voices, Clopper).		
<b>2000 Introduction to Linguistics</b>	<b>U</b>	<b>3</b>
Examination of language as a system of human communication; provides students with the tools needed for the recording, investigation, and close analysis of language. Prereq: Not open to students with credit for 2000H or 201. GE cultures and ideas course.		
<b>2000H Introduction to Linguistics</b>	<b>U</b>	<b>3</b>
Examination of language as a system of human communication; provides students with the tools needed for the recording, investigation, and close analysis of language. Prereq: Honors standing. Not open to students with credit for 201H. GE cultures and ideas course.		
<b>2001 Language and Formal Reasoning</b>	<b>U</b>	<b>3</b>
How natural and artificial languages are alike in structure and use in reasoning; how natural languages differ in principles of use by humans. Prereq: Math 075 or equiv, or Math placement level R. Not open to students with credit for 280. GE quant reason math and logical anly course.		
<b>2051 Analyzing the Sounds of Language</b>	<b>U</b>	<b>3</b>
The sounds that languages use are examined. Quantitative analytical tools used in phonetic science are introduced. Small experiments are conducted to introduce students to research. Prereq: Math 1075 or 1148, or an ACT math subscore of 22 or higher that is less than two years old; or Math Placement Level R. Not open to students with credit for 2051H or SphHrng 2051. GE data anly course. Cross-listed in SphHrng.		

## 294 Linguistics

<b>2051H</b>	<b>Analyzing the Sounds of Language</b>	<b>U</b>	<b>3</b>
The sounds that languages use are examined. Quantitative analytical tools used in phonetic science are introduced. Small experiments are conducted to introduce students to research. Prereq: Honors standing, and Math 148 or 150. Not open to students with credit for SphHrng 2051 (286) or 286H. GE data only course.			
<b>2052H</b>	<b>Theories of Linguistics: The Scientific Method for Abstractions and Unobservables</b>	<b>U</b>	<b>3</b>
Provides a strong grounding in fundamental principles of scientific reasoning illustrated through concrete examples across the Natural and Social sciences with emphasis on Psychology and Linguistics. This course is suitable for students from all backgrounds including non-science majors. Students will gain understanding of what it means to "do science." Prereq: Honors standing. GE quant reason math and logical only course.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Introductory topics in linguistics. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2367.01</b>	<b>Language, Sex, and Gender in American Culture</b>	<b>U</b>	<b>3</b>
Discussing and writing about ways that views about sex and gender affect language and its use in speech communities in the U.S. Prereq: English 1110.01, 1110.02, 1110.03, or equiv, and Soph standing. Not open to students with credit for 2367.01H. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.01H</b>	<b>Language, Sex, and Gender in American Culture</b>	<b>U</b>	<b>3</b>
Discussing and writing about ways that views about sex and gender affect language and its use in speech communities in the US. Prereq: Honors and Soph standing; and English 1110.01 (110.01), or 1110.02 (110.02), or 1110.03 (110.03), or equiv. Not open to students with credit for 2367.01 (367.01), 367, 367H, or 367.01H. GE writing and comm: level 2 and diversity soc div in the US course.			
<b>2367.02</b>	<b>Language and Advertising</b>	<b>U</b>	<b>3</b>
How advertising impacts American culture; how the U.S. influences international advertising and how various populations are represented in ads. Prereq: English 1110.01 (110.01), or 1110.02 (110.02), or 1110.03 (110.03), or equiv; and Soph standing. Not open to students with credit for Linguist 367.02. GE writing and comm course: level 2.			
<b>2797.01</b>	<b>Global May Study Abroad New Zealand</b>	<b>U</b>	<b>3</b>
Introduces students to the unique history and culture of New Zealand. Through an intensive immersion program students will combine classroom instruction from UC academics with cultural visits and community engagement projects. The focus of the course is on Language and Identity which will enable students to become immersed in the culture and history of New Zealand. GE education abroad course.			
<b>2797.02</b>	<b>Immersive Linguistics: The South of France</b>	<b>U</b>	<b>3</b>
This Study Abroad 3-credit course will introduce students to the linguistic properties of French through inquiry into the unique language, culture, and history of Aix-en-Provence, located in the south of France. This intensive 4-week Study Abroad immersion program will combine formal classroom instruction in linguistic analysis by OSU faculty with cultural immersion in Aix-en-Provence. GE education abroad course.			
<b>3191</b>	<b>Internship in Linguistics</b>	<b>U</b>	<b>1 - 3</b>
Intensive experience in linguistics as a research assistant on a faculty research project or as an intern at a linguistics-related business or organization. Prereq: Ling 2000 (Linguist 201), 2000H (201H), or 4000 (601), and at least 3 additional courses in Linguistics. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.			
<b>3401</b>	<b>Words and Meanings</b>	<b>U</b>	<b>3</b>
An introduction to semantics focusing on word meanings, meaning in word formation, meaning change over time, and cognitive processes involved in word learning and use. Prereq: Ling 2000 (Linguist 201), 2000H (201H), or 4000 (601), and English 1110.01 (110.01), 1110.02 (110.02), or 1110.03 (110.03) or equiv.			
<b>3501</b>	<b>Introduction to American Indigenous Languages</b>	<b>U</b>	<b>3</b>
An introduction to indigenous languages of the Americas and their speakers: e.g. history of settlement, language families, linguistic properties, bilingual education, language policies and attitudes. Prereq: English 1110.01 (110.01), 1110.02 (110.02), or 1110.03 (110.03), or equiv. Not open to students with credit for Linguist 307. GE soc sci indivs and groups and diversity global studies course.			
<b>3502</b>	<b>Klingon, Elvish, Dothraki: The Linguistics of Constructed Languages</b>	<b>U</b>	<b>3</b>
Constructed languages like Klingon, Elvish, and Dothraki may seem like the province of ComiCon goers, but they have a long and varied intellectual history. Constructed languages require a deep understanding of both the mechanics of language and how languages relate to the cultures that they come from. This course examines the linguistic complexity of constructed languages.			
<b>3601</b>	<b>Language, Race, and Ethnicity in the U.S.</b>	<b>U</b>	<b>3</b>
Objective examination of the relationship between language, race and ethnicity in the context of varieties of English used by minority ethnic and racial groups in the U.S. Prereq: English 1110.01, 1110.02, or 1110.03, or equiv. GE cultures and ideas and diversity soc div in the US course.			

<b>3602</b>	<b>Language and Social Identity in the U.S.</b>	<b>U</b>	<b>3</b>
Relationships between language and social diversity in the general American speech community; discussion of how individuals and social groups distinguish themselves on the basis of language. Prereq: Not open to students with credit for Linguist 372. GE soc sci indivs and groups and diversity soc div in the US course.			
<b>3603</b>	<b>Language Across Cultures</b>	<b>U</b>	<b>3</b>
Investigation of relationships between language and culture in different societies with a view to shedding light on cross-cultural similarities and differences. Prereq: English 1110.01 (110.01), 1110.02 (110.02), or 1110.03 (110.03), or equiv. Not open to students with credit for Linguist 375. GE soc sci indivs and groups and diversity global studies course.			
<b>3701</b>	<b>Language and the Mind</b>	<b>U</b>	<b>3</b>
Introduction to the psychological processes for producing and understanding speech, the means by which they arise in the child, and bases in the brain. Prereq: 2000 (201), 2000H (200H), 5000 (4000), Psych 1100 (100), or 1100H (100H). Not open to students with credit for 371, 3701H (371H), Psych 3371 (371), or 3371H (371H). GE soc sci indivs and groups course. Cross-listed in Psych 3371.			
<b>3701E</b>	<b>Language and the Mind</b>	<b>U</b>	<b>3</b>
Introduction to psychological processes for producing and understanding speech, the means by which these processes arise in the child, and their bases in the brain. Prereq: Honors standing, and 2000 or Psych 1100. Not open to students with credit for 3701, 3701H, Psych 3371, 3371E, or 3371H. GE soc sci indivs and groups course. Cross-listed in Psych 3371E.			
<b>3701H</b>	<b>Language and the Mind</b>	<b>U</b>	<b>3</b>
Introduction to the psychological processes for producing and understanding speech, the means by which they arise in the child, and bases in the brain. Prereq: Ling 2000 (Linguist 201), 2000H (201H), 4000 (601), or Psych 1100 (100), or permission of instructor. Not open to students with credit for Linguist 371, 371H, Psych 3371 (371), or 3371H (371H). GE soc sci indivs and groups course. Cross-listed in Psych 3371H.			
<b>3801</b>	<b>Codes and Codebreaking</b>	<b>U</b>	<b>3</b>
Introduction to old and new technology associated with codes and code-breaking and the ways in which it has impacted people's lives.			
<b>3802</b>	<b>Language and Computers</b>	<b>U</b>	<b>3</b>
Introduction to human language technology, explaining the computational and linguistic principles behind such familiar technologies as web search, machine translation, and spelling correction. Prereq: Soph standing or above. Not open to students with credit for Linguist 384. GE quant reason math and logical only course.			
<b>3802H</b>	<b>Language and Computers</b>	<b>U</b>	<b>3</b>
Introduction to human language technology, explaining the computational and linguistic principles behind such familiar technologies as web search, machine translation, and spelling correction. Prereq: Honors standing. Not open to students with Fresh standing. GE quant reason math and logical only course.			
<b>3803</b>	<b>Ethics of Language Technology</b>	<b>U</b>	<b>3</b>
Students will learn about how language processing systems are created, and at what steps in the process bias and unfairness might creep in. They will learn about efforts to define, detect and quantify bias, and how different ethical principles can lead to different results. Finally, students will discuss different ways to remedy the ethical problems of language technology.			
<b>3901</b>	<b>Language Evolution and Language Change</b>	<b>U</b>	<b>3</b>
A study of how and why languages change and evolve over time, taking into account the linguistic, historical, ideological and cultural factors involved. Prereq: Not open to students with credit for Linguist 301. GE cultures and ideas course. Cross-listed in NELC 3101.			
<b>4100</b>	<b>Phonetics</b>	<b>U</b>	<b>3</b>
Cross-linguistic survey of the sounds of the world's languages. Prereq: 2000, 2000H, or 4000. Not open to students with credit for 5101.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual Studies. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of topics not regularly scheduled for seminars in linguistics, under the direction of a faculty member. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.			
<b>4200</b>	<b>Syntax</b>	<b>U</b>	<b>3</b>
Basic elements of syntactic description and an overview of syntactic structure across languages. Prereq: Ling 2000 (Linguist 201), 2000H (201H), or 4000 (601). Not open to students with credit for Ling 5201 (Linguist 602.01).			



<b>4300</b>	<b>Phonology</b>	<b>U</b>	<b>3</b>
Introduction to phonological analysis and description, and an overview of phonological structure across languages. Prereq: Ling 2000 (Linguist 201), 2000H (201H), or 4000 (601). Not open to students with credit for Ling 5301 (Linguist 603.01).			
<b>4350</b>	<b>Morphology</b>	<b>U</b>	<b>3</b>
The grammatical and phonological analysis of words, and their significance in linguistic structure. Prereq: Ling 2000 (Linguist 201), 2000H (201H), or 4000 (601).			
<b>4400</b>	<b>Linguistic Meaning</b>	<b>U</b>	<b>3</b>
Introduction to linguistic meaning across languages, including word meaning, the contribution of syntactic structure, and the role of context in interpretation. Prereq: 2000 (201), 2000H (201H), or 4000 (601).			
<b>4780</b>	<b>Undergraduate Research Seminar</b>	<b>U</b>	<b>3</b>
Linguistics students learn about cutting-edge research by OSU linguists and get hands-on experience conducting their own linguistic research. Prereq: Ling 4100, 4200, or 4300, and enrollment in Ling major; or permission of instructor.			
<b>4797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 30</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs. Prereq: Permission of department. Repeatable to a maximum of 30 cr hrs or 30 completions.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or creative activities in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 15 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 10</b>
Research: assigned reading and individual research. Prereq: Honors standing and permission of instructor. Repeatable to a maximum of 10 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Undergraduate research or creative activities in various topics culminating in a research thesis and oral defense. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 10</b>
Honors undergraduate research or creative activities in various topics, culminating in a research thesis and oral defense. Prereq: Honors standing, and permission of instructor and the Arts and Sciences Honors Committee. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5050</b>	<b>Technical Tools for Linguists</b>	<b>U G</b>	<b>3</b>
Practical training in standard computational tools for tackling different kinds of linguistic research. Students will learn computational techniques to access, search and format linguistic datasets, including text corpora, speech and audio, structured representations such as parse trees, and experimental measurements. The course will also cover data exploration and basic modeling.			
<b>5051</b>	<b>Quantitative Methods</b>	<b>U G</b>	<b>3</b>
Quantitative methods in the sub-disciplines of Linguistics, including data analysis, interpretation and display of data, inferential statistics, and statistical modeling. Prereq: Ling 2000 (Linguist 201), 2000H (201H), or 4000 (601).			
<b>5101</b>	<b>Phonetics: Phonetic Theory</b>	<b>U G</b>	<b>3</b>
Principles of articulatory phonetics, with some discussion of acoustic phonetics; practice in the production, recognition, and transcription of sounds in various languages of the world. Prereq: 4100 (Linguist 500), 4300 (503), or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 600.01.			
<b>5102</b>	<b>Laboratory Phonology</b>	<b>U G</b>	<b>3</b>
Introduction to laboratory methods and quantitative models of speech for linguistics. Prereq: Ling 5101 (Linguist 600.01). Not open to students with credit for Linguist 600.02.			
<b>5201</b>	<b>Syntactic Theory I</b>	<b>U G</b>	<b>3</b>
Theories of syntax; principles of syntactic description. Prereq: 4200 (Linguist 502) or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 602.01.			
<b>5202</b>	<b>Syntactic Theory II</b>	<b>U G</b>	<b>3</b>
Theories of syntax; principles of syntactic description. Prereq: Ling 5201 (Linguist 602.01). Not open to students with credit for Linguist 602.02.			
<b>5301</b>	<b>Phonological Theory I</b>	<b>U G</b>	<b>3</b>
Introduction to phonological analysis and the principles governing the structure, acquisition, and change of phonological systems; survey of major phonological theories. Prereq: 4100 (Linguist 500), 4300 (503), or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 603.01.			

<b>5302</b>	<b>Topics in Advanced Phonology</b>	<b>U G</b>	<b>3</b>
Introduction to phonological analysis and the principles governing the structure, acquisition, and change of phonological systems; survey of major phonological theories. Prereq: 5301 or Linguist 603.01. Not open to students with credit for Linguist 603.02. Repeatable to a maximum of 9 cr hrs.			
<b>5351</b>	<b>Morphological Theory</b>	<b>U G</b>	<b>3</b>
Introduction to and comparison of current theories of morphology with application to linguistic data and problems. Prereq: 2000 (Linguist 201), 2000H (201H), or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 609.			
<b>5401</b>	<b>Semantic Theory I</b>	<b>U G</b>	<b>3</b>
Problems and methods in linguistic semantics, using logic and semantic model theory as analytic tools; reference, compositionality, presupposition, conversational implicature, speech acts, deixis. Prereq: 4400 or 5000 (Linguist 601); or permission of instructor. Not open to students with credit for Linguist 683.01.			
<b>5402</b>	<b>Semantic Theory II</b>	<b>U G</b>	<b>3</b>
Montague semantics and more recent semantic theories; analysis of important problems, such as generalized quantifiers, lattice-based accounts of plurals and events, discourse representation theory. Prereq: Ling 5401 (Linguist 683.01). Not open to students with credit for Linguist 683.02.			
<b>5501</b>	<b>An Introduction to African-American English</b>	<b>U G</b>	<b>3</b>
Introduction to the structure and history of the varieties of English used by African-Americans and the relationship between language use and socio-cultural context. Prereq: One Linguistics course taken at the 4000 level (300 level) or above. Not open to students with credit for AfAmASt 5501 or 605.			
<b>5551</b>	<b>Field Methods I</b>	<b>U G</b>	<b>3</b>
Methodology for determining the phonological system of a previously unknown language through the use of a native informant. Prereq: Two courses from two of the following three groups: 4100 (Linguist 500) or 5101 (600); 4200 (502) or 5201 (602.01); or 4300 (503) or 5301 (603.01); or permission of instructor. Repeatable to a maximum of 24 cr hrs.			
<b>5601</b>	<b>Introduction to Sociolinguistics</b>	<b>U G</b>	<b>3</b>
Survey of approaches to the study of language in its social context: sociology of language, ethnography of speaking, discourse analysis, quantitative sociolinguistics. Prereq: Two Ling courses 2000 (Linguist 201) or above, or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 661.01.			
<b>5602</b>	<b>Introduction to Quantitative Sociolinguistics</b>	<b>U G</b>	<b>3</b>
Exploration of language in its social context through the methods of quantitative analysis of linguistic variation, including the Labovian and implicational models. Prereq: 5601.			
<b>5603</b>	<b>Sociolinguistic Field Methods</b>	<b>U G</b>	<b>3</b>
Research methods for sociolinguistic fieldwork including interviewing, observation, survey design and experimental work. Focus on methodology, planning and implementation. Prereq: 5601 (Linguist 661.01).			
<b>5612</b>	<b>Introduction to Cognitive Science</b>	<b>U G</b>	<b>3</b>
Cognitive science is an interdisciplinary study of the nature of human thought; psychological, philosophical, linguistic, and artificial intelligence approaches to knowledge representation. Prereq: Permission of instructor. Not open to students with credit for Linguist 612, Philos 5830 (612), CSE 5531 (612), or Psych 5612 (612). Cross-listed in Philos 5830, CSE 5531, and Psych 5612.			
<b>5651</b>	<b>Languages in Contact</b>	<b>U G</b>	<b>3</b>
Study of the effects of language contact on the structure of the involved languages, and of the characteristics of the individuals and communities involved in language contact. Prereq: Two Ling courses 2000 (Linguist 201) or above; or Grad standing.			
<b>5700</b>	<b>Training in Informal Science Outreach</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to provide students with hands-on training in informal science education at the COSI museum. All students will learn to provide outreach education at the museum; advanced students will develop outreach materials, assist in the visible research operations, and mentor other students. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Cross-listed in Psych and EduTL.			
<b>5701</b>	<b>Psycholinguistics I</b>	<b>U G</b>	<b>3</b>
An introduction to high-level language processing, word recognition, sentence understanding, and discourse processing. Prereq: 3701 (Linguist 371), 3701H (371H), or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 615.			
<b>5703</b>	<b>Eye Tracking Methods for Psycholinguistics</b>	<b>U G</b>	<b>3</b>
A hands-on laboratory course focusing on current techniques for monitoring eye movements as a measure of language processing. We will discuss preparation of auditory and screen-based/real world visual stimuli, and methods for aggregating and analyzing eye movement data. Students will have access to Tobii and ASL Mobile eye trackers. Prereq: Ling 3701H (Linguist 371H) or 5701 (615).			

## 296 Linguistics

<b>5801</b>	<b>Computational Linguistics I</b>	<b>U G</b>	<b>3</b>
Symbolic and probabilistic computation applied to the structure of words and sentences, models of syntax, parsing algorithms. Prereq: 3802 (Linguist 384), 5000 (601), CSE 3321, 3521, or 5052; or permission of instructor. Not open to students with credit for Linguist 684.01.			
<b>5802</b>	<b>Computational Linguistics II</b>	<b>U G</b>	<b>3</b>
Computational models of language acquisition and application of machine learning techniques to language processing. Prereq: Ling 5801 (Linguist 684.01). Not open to students with credit for Linguist 684.02.			
<b>5804</b>	<b>Analyzing Language in Social Media</b>	<b>U G</b>	<b>3</b>
Course gives students experience analyzing language in social media. It covers theoretical issues arising in digital communication and provides hands-on practice at computational data analysis, applicable across fields. Students gain an understanding of the sociolinguistic dynamics of online communication and the technical skills to conduct research on them. Team-taught w/ faculty in English. Prereq: Not open to students with credit for English 5804. Cross-listed in English.			
<b>5891</b>	<b>Proseminar in Cognitive Science</b>	<b>U G</b>	<b>2</b>
Provides an in-depth examination of cognitive science from an interdisciplinary perspective. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. Cross-listed in CSE, Psych, Philos, and SphHrng.			
<b>5901</b>	<b>Introduction to Historical Linguistics</b>	<b>U G</b>	<b>3</b>
Introduction to the methods and principles of historical linguistics. Prereq: 4100 (Linguist 500), 5101 (600.01), 4300 (503), 5301 (603.01), or 5000 (601); or permission of instructor. Not open to students with credit for Linguist 611.			
<b>5906</b>	<b>Topics in Indo-Iranian Linguistics</b>	<b>U G</b>	<b>1 - 3</b>
Possible topics include advanced classical Sanskrit, introductory Vedic Sanskrit, Indo-Iranian or Indo-Aryan linguistics, or studies in the ancient Indian grammarians. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>6000</b>	<b>Teaching Introductory Linguistics</b>	<b>G</b>	<b>1</b>
Designed to train instructors in the techniques and materials used to teach introductory linguistics courses. Prereq: Not open to students with credit for Linguist 830. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>6001</b>	<b>Proseminar in Linguistics</b>	<b>G</b>	<b>2</b>
Introduction to the problems, methods, and tools of linguistic research. Recommended for all candidates for grad degrees. Repeatable to a maximum of 50 cr hrs. This course is graded S/U.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 12</b>
Individual Studies. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Study of topics not regularly scheduled for seminars in linguistics, under the direction of a faculty member. Prereq: Ling 4000 (Linguist 601). Repeatable to a maximum of 24 cr hrs or 8 completions.			
<b>7890.01</b>	<b>Seminar Discussion Groups: TA Workshop</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.02</b>	<b>Seminar Discussion Groups: Syntax</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.03</b>	<b>Seminar Discussion Groups: Phonetics/Phonology</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.04</b>	<b>Seminar Discussion Groups: Pragmatics</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.05</b>	<b>Seminar Discussion Groups: Language Acquisition Research Group</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 (600) level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.06</b>	<b>Seminar Discussion Groups: Sociolinguistics/Historical Linguistics</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 (600) level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			

<b>7890.07</b>	<b>Seminar Discussion Groups: Psycholinguistics</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 (600) level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.08</b>	<b>Seminar Discussion Groups: Computational Linguistics</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 (600) level or above course in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.09</b>	<b>Seminar-Discussion Group on LLIC (Language, Logic, Information, and Computation)</b>	<b>G</b>	<b>1 - 3</b>
This discussion group introduces, discusses and reviews the technical details of formal methods in linguistics. Prereq: 5000 (600) level course or above in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.10</b>	<b>Seminar Discussion Groups: Topics in Linguistics</b>	<b>G</b>	<b>1 - 3</b>
A selected group study, with emphasis on individual writing and presentation. Prereq: 5000 (600) level course or above Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.11</b>	<b>Sociolinguistic Meaning Discussion Group</b>	<b>G</b>	<b>1 - 3</b>
Cross-disciplinary discussion group on sociolinguistic meaning. Readings and research drawn from sociolinguistics, anthropology, psycholinguistics, phonetics and social cognition, among others. Prereq: 5000 (600) level course or above in Ling, or permission of instructor. Repeatable to a maximum of 60 cr hrs or 60 completions.			
<b>7890.12</b>	<b>Seminar in Linguistics: Computational and Cognitive Approaches to Language Discussion Group</b>	<b>G</b>	<b>1 - 3</b>
A selected seminar, with emphasis on individual writing and presentation. This particular decimalized subdivision of Linguistics 7890 (Seminar in Linguistics) is specified to be a forum for individual writing and presentation by members of the Computational and Cognitive Approaches to Language Discussion Group. Repeatable.			
<b>7901</b>	<b>Historical Linguistics: Phonology</b>	<b>G</b>	<b>3</b>
An introduction to the methods, conventions, and literature of comparative-historical linguistics with primary attention to the comparison and reconstruction of Indo-European phonological systems. Prereq: Ling 4000 (Linguist 601) and 5901 (611), or permission of instructor. Not open to students with credit for Linguist 801.			
<b>7902</b>	<b>Historical Linguistics: Morphology</b>	<b>G</b>	<b>3</b>
Advanced work in the comparison and reconstruction of morphological and syntactic systems, primarily Indo-European; detailed examination of some of the results of past and current scholarship. Prereq: 7901 (Linguist 801). Not open to students with credit for 802.			
<b>7903</b>	<b>Topics in Indo-European</b>	<b>G</b>	<b>3</b>
Study of various Indo-European languages and language families and exploration in depth of specific problems in Indo-European grammar. Prereq: Ling 7902 (Linguist 802). Repeatable to a maximum of 18 cr hrs.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Assigned reading and individual research. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>8200</b>	<b>Seminar in Syntax</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in syntactic analysis. Prereq: 5202 (Linguist 602.02). Repeatable to a maximum of 18 cr hrs.			
<b>8300</b>	<b>Seminar in Phonology</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in phonological analysis. Prereq: 5302 (Linguist 603.02). Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>8350</b>	<b>Seminar in Morphology</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in morphological analysis. Repeatable to a maximum of 18 cr hrs or 18 completions.			
<b>8400</b>	<b>Seminar in Semantics</b>	<b>G</b>	<b>1 - 3</b>
Accounts of semantic judgments in languages, especially within the theory of generative grammar; relationships between syntax, semantics, and language use. Prereq: 5202 (Linguist 602.02). Repeatable to a maximum of 18 cr hrs.			
<b>8600</b>	<b>Seminar in Sociolinguistics</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in sociolinguistics. Prereq: 5601 (Linguist 661.01). Repeatable to a maximum of 18 cr hrs or 18 completions.			
<b>8650</b>	<b>Seminar in Contact Linguistics</b>	<b>G</b>	<b>1 - 3</b>
The goal of this seminar is to explore in some detail the methodological frameworks and theoretical issues that relate to the origins and development of various outcomes of language contact. Prereq: Ling 5651 (Linguist 685). Repeatable to a maximum of 18 cr hrs or 18 completions.			

<b>8700 Seminar in Psycholinguistics</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in psycholinguistics. Prereq: Ling 5701 (Linguist 615). Repeatable to a maximum of 18 cr hrs or 18 completions.		
<b>8800 Seminar in Computational Linguistics</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in computational linguistics. Prereq: 5802. Repeatable to a maximum of 18 cr hrs.		
<b>8998 Non-thesis graduate research</b>	<b>G</b>	<b>1 - 15</b>
Non-thesis graduate research. Repeatable to a maximum of 15 ch or 15 completions. This course is graded S/U.		
<b>8999 Thesis/Dissertation Research in Linguistics</b>	<b>G</b>	<b>1 - 10</b>
Research for thesis and dissertation purposes only. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.		

## Master of Business Administration

<b>6200 Organizational Behavior, Teamwork and Leadership-EMBA</b>	<b>G</b>	<b>3</b>
An overview of factors that influence individual, group and organizational work performance and techniques to improve it; analytical frameworks for determining effectiveness of given techniques in specific circumstances. Prereq: Enrollment in Executive MBA program or permission of instructor. Not open to students with credit for 860.		
<b>6201 Organizational Behavior</b>	<b>G</b>	<b>1½</b>
An overview of factors that influence individual and team performance and techniques to improve it; analytical frameworks for determining effectiveness of given techniques in specific circumstances. Prereq: Enrollment in MBA or WP MBA program; or permission of instructor. Not open to students with credit for 860.		
<b>6202 Leadership</b>	<b>G</b>	<b>1½</b>
An overview of factors that influence individual and team performance and techniques to improve it; analytical frameworks for determining effectiveness of given techniques in specific circumstances. Prereq: Enrollment in MBA or WP MBA program; or permission of instructor. Not open to students with credit for 860.		
<b>6203 Organizational Behavior and Leadership</b>	<b>G</b>	<b>3</b>
This class is about building critical managerial skills needed to excel in careers, as well as providing an understanding of how and why effective leaders do what they do. While being technically proficient is a necessary prerequisite for many jobs, it is equally important to understand the human side of business and management. Prereq: Enrollment in MBA program, or permission of instructor. Not open to students with credit for 6201 or 6202.		
<b>6204 Professional Development: Leadership and Team Effectiveness-EMBA</b>	<b>G</b>	<b>3</b>
Skills enhancement in professional teamwork and leadership roles. Prereq: Enrollment in Executive MBA program or permission of instructor. Not open to students with credit for BusMHR 801.		
<b>6210 Accounting for Decision Making-EMBA</b>	<b>G</b>	<b>3</b>
Uses of Accounting by Managers. Prereq: Enrollment in Executive MBA program or permission of instructor. Not open to students with credit for 802.		
<b>6211 Accounting for Decision Making</b>	<b>G</b>	<b>3</b>
Examines the role of accounting and financial reporting by investors and managers for decision-making and performance evaluation. Prereq: Enrollment in MBA program or permission of instructor. Not open to students with credit for 800 or 801.		
<b>6220 Finance</b>	<b>G</b>	<b>3</b>
Course covers time value of money, risk and return, investment criteria, capital budgeting, market efficiency, derivatives, and interest rate parity. Prereq: Enrollment in Executive MBA program or Working Professional MBA program; or permission of instructor. Not open to students with credit for 810.		
<b>6223 Finance</b>	<b>G</b>	<b>3</b>
A market-oriented framework for analyzing the major types of financial decisions made by corporations. The course covers the following topics: present value techniques, capital budgeting, asset valuation, portfolio theory, asset pricing, market efficiency, options, capital structure, financial distress, financial modeling, risk management, mergers and acquisitions and ethics. Prereq: Enrollment in the MBA or WP MBA program. Not open to students with credit for 6221, 6222, or BusFin 810 or 811.		
<b>6230 Operations Management</b>	<b>G</b>	<b>1 - 3</b>
How the operations function contributes to ensuring effective and efficient flow of materials and information within and outside the organization. Prereq: Enrollment in Executive MBA program or Working Professional MBA program; or permission of instructor. Not open to students with credit for 850. Repeatable to a maximum of 3 cr hrs. This course is progress graded.		

<b>6231 Operations Management I</b>	<b>G</b>	<b>1½</b>
How the operations function contributes to ensuring effective and efficient flow of materials and information within and outside the organization. Prereq: Enrollment in MBA or permission of instructor. Not open to students with credit for 850.		
<b>6232 Operations Management II</b>	<b>G</b>	<b>1½</b>
How the operations function contributes to ensuring effective and efficient flow of materials and information within and outside the organization. Continuation of 6231. Prereq: 6231 and enrollment in MBA or WP MBA program or permission of instructor. Not open to students with credit for 850.		
<b>6233 Operations Management</b>	<b>G</b>	<b>3</b>
Operations Management (MBA 6233) is designed to provide a solid foundation and deeper understanding of how the operations function contributes to ensuring effective and efficient flow of materials and information within and outside the organization. Prereq: Enrollment in MBA, or permission of instructor. Not open to students with credit for 850.		
<b>6240 Organizations, Markets and Management-EMBA</b>	<b>G</b>	<b>3</b>
Microeconomics from a management and organizational perspective, developing a framework grounded in the fundamentals of economic theory. Prereq: Enrollment in Executive MBA program or permission of instructor. Not open to students with credit for 812.		
<b>6243 Organizations, Markets and Management</b>	<b>G</b>	<b>3</b>
Microeconomics from a management and organizational perspective, developing a framework grounded in the fundamentals of economic theory. Prereq: Enrollment in MBA or WP MBA program, or permission of instructor. Not open to students with credit for 6241 or 812.		
<b>6250 Marketing Management</b>	<b>G</b>	<b>3</b>
Focuses on the interrelated elements of the marketing mix, its relationship with the other functional areas of management, and marketing responses to the external environment. Prereq: Enrollment in Executive MBA program or Working Professional MBA program or permission of instructor. Not open to students with credit for 840.		
<b>6251 Marketing Management I</b>	<b>G</b>	<b>1½</b>
Focuses on the interrelated elements of the marketing mix, its relationship with the other functional areas of management, and marketing responses to the external environment. Prereq: Enrollment in MBA program or permission of instructor. Not open to students with credit for 840.		
<b>6252 Marketing Management II</b>	<b>G</b>	<b>1½</b>
Focuses on the interrelated elements of the marketing mix, its relationship with the other functional areas of management, and marketing responses to the external environment. Continuation of 6251. Prereq: 6251 and enrollment in MBA or permission of instructor. Not open to students with credit for 840.		
<b>6253 Marketing</b>	<b>G</b>	<b>3</b>
Focuses on the interrelated elements of the marketing mix, its relationship with the other functional areas of management, and marketing responses to the external environment. Prereq: Enrollment in MBA program, or permission of instructor. Not open to students with credit for 840.		
<b>6260 Global Environment of Business-EMBA</b>	<b>G</b>	<b>3</b>
Political, economic, social and technological forces shaping today's global business environment. Prereq: Enrollment in Executive MBA program, or permission of instructor. Not open to students with credit for 820.		
<b>6261 Global Environment of Business</b>	<b>G</b>	<b>1½</b>
Political, economic, social and technological forces shaping today's global business environment. Prereq: Enrollment in MBA or WP MBA program, or permission of instructor. Not open to students with credit for 820.		
<b>6270 Data Analysis for Managers-EMBA</b>	<b>G</b>	<b>3</b>
Introduction to data analysis and statistics for business. Emphasis on achieving an application-oriented understanding of statistical inference and regression analysis and their use in decision making. Prereq: Enrollment in Executive MBA program or permission of instructor. Not open to students with credit for 870.		
<b>6273 Data Analysis for Managers</b>	<b>G</b>	<b>3</b>
Introduction to data analysis and statistics for business. Emphasis on achieving an application-oriented understanding of statistical inference and regression analysis and their use in decision making. Prereq: Enrollment in MBA or WP MBA program, or permission of instructor. Not open to students with credit for 6271 or 870.		
<b>6281.01 Professional Development</b>	<b>G</b>	<b>1½</b>
Professional development and skill set enhancement in the areas of leadership, self-awareness, team-based work and ability to adapt to work life in the context of different organizational and global cultures. Prereq: Enrollment in MBA program.		

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<b>6281.04 Professional Development</b>	<b>G</b>	<b>1½</b>
Professional development and skill set enhancement in the areas of leadership, self-awareness, team-based work and ability to adapt to work life in the context of different organization and global cultures. Prereq: Enrollment in MBA program, or permission of instructor.		
<b>6290 Strategy Formulation &amp; Implementation-EMBA</b>	<b>G</b>	<b>3</b>
Focuses on the determination of the strategic direction of the firm and the management of the strategic process. Prereq: Enrollment in Executive MBA program or permission of instructor. Not open to students with credit for 980.		
<b>6292 Business Lab Challenge</b>	<b>G</b>	<b>3</b>
Course provides the foundations of project management. Students work in teams to apply these concepts via the execution and presentation of a business project for a local firm. Prereq: Enrollment in MBA program.		
<b>6293 Strategy Formulation &amp; Implementation</b>	<b>G</b>	<b>3</b>
Focus on the determination of the strategic direction of the firm and the management of the strategic process. Prereq: Enrollment in MBA or WP MBA program, or permission of instructor. Not open to students with credit for 980 or 6290 or 6291.		
<b>6295 Social Impact</b>	<b>G</b>	<b>3</b>
Students will learn about the unique challenges and business environment facing non-profit organizations through the design, execution, and presentation of a socially-impactful consulting project with/for a local non-profit organization. Prereq: MBA 6293, or permission of instructor.		
<b>6296 Max Problem Solving</b>	<b>G</b>	<b>1½</b>
The MAX Problem Solving capstone course deploys the decision-making FISHER strategy to examine serious social challenges facing current and future enterprise and to stir discussion and debate for future leaders to embody the best in business stewardship and ethical enterprise principles.		

### Master of Dietetics and Nutrition

<b>6000 Medical Nutrition Therapy and Pathophysiology I</b>	<b>G</b>	<b>3</b>
Study of nutrition therapy in disease: interrelationships of nutrition with biochemical, physiological and anatomical changes associated with energy balance, diseases of the cardiovascular, musculoskeletal and respiratory systems. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6001 Communications Strategies, Methods and Technology in Dietetics I</b>	<b>G</b>	<b>1</b>
An evidence based review of current topics in dietetics to support the integration of nutrition informatics, scientific evidence and key trends in healthcare to dietetics practice. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6002 Communications Strategies, Methods and Technology in Dietetics II</b>	<b>G</b>	<b>1</b>
An evidence based review of current topics in dietetics to support the integration of nutrition informatics, scientific evidence and key trends in healthcare to dietetics practice. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6050 Nutrition Care Process Laboratory I</b>	<b>G</b>	<b>2</b>
Laboratory: integration and application of knowledge of nutrition, dietetics, metabolism, and physiology to plan and manage the nutritional care of a variety of patients/clients with evidence-based medical nutrition therapy with laboratory and experiential application. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6089 Supervised Practice: Outpatient</b>	<b>G</b>	<b>1 - 5</b>
Supervised practice experience in a specific health care system with outpatient emphasis to achieve professional competencies. The student works under the direction of Registered Dietitian Nutritionists and the supervision of MDN faculty. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN). Repeatable to a maximum of 5 cr hrs or 3 completions. This course is graded S/U.		
<b>6100 Medical Nutrition Therapy and Pathophysiology II</b>	<b>G</b>	<b>3</b>
Study of nutrition therapy in disease: interrelationships of nutrition with biochemical, physiological and anatomical changes associated with disorders of Gastroenterology, Endocrine, Renal, Oncology, Nutritional genomics, Intellectual Disabilities. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6150 Nutrition Care Process Laboratory II</b>	<b>G</b>	<b>2</b>
Laboratory: integration and application of knowledge of nutrition, dietetics, metabolism, and physiology to plan and manage the nutritional care of a variety of patients/clients with evidence-based medical nutrition therapy with laboratory and experiential application. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6189 Supervised Practice: Acute Care</b>	<b>G</b>	<b>1 - 5</b>
Supervised practice experience in a specific health care system with inpatient emphasis to achieve professional competencies. The student works under the direction of Registered Dietitian Nutritionists and the supervision of MDN faculty. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN). Repeatable to a maximum of 5 cr hrs or 3 completions. This course is graded S/U.		

<b>6200 Medical Nutrition Therapy and Pathophysiology III</b>	<b>G</b>	<b>3</b>
Study of nutrition therapy in disease: interrelationships of nutrition with biochemical, physiological and anatomical changes associated with acute, chronic and terminal illness, surgery and trauma. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6250 Nutrition Care Process Laboratory III</b>	<b>G</b>	<b>2</b>
Laboratory: integration and application of knowledge of nutrition, dietetics, metabolism, and physiology to plan and manage the nutritional care of a variety of patients/clients with evidence-based medical nutrition therapy with laboratory and experiential application. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6300 Advanced Nutrition Counseling Education</b>	<b>G</b>	<b>3</b>
Individual and group nutrition education/counseling as applied to responsibilities of the registered dietitian: Theoretical principles and teaching skills needed for effective group teaching of nutrition and to creation of content for a variety of populations and settings. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6350 Advanced Nutrition Counseling Education II</b>	<b>G</b>	<b>2</b>
Individual and group nutrition education/ counseling as applied to responsibilities of the registered dietitian: Theoretical principles and teaching skills needed for effective individual and group teaching of nutrition and to creation of content for a variety of populations and settings. Prereq: 6300 and admission to MDN Program.		
<b>6400 Advanced Nutrition and Physical Assessment</b>	<b>G</b>	<b>3</b>
Comprehensive development of skills for nutritional & physical assessment information using evidence-based research. Assessment of macro and micronutrient status will be discussed in the context of Inflammation, pathology, aging, and sarcopenia will be investigated. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6489 Supervised Practice: Culminating</b>	<b>G</b>	<b>3</b>
Supervised practice experience in a specific health care system with inpatient and outpatient emphasis to achieve professional competencies. The student works under the direction of Registered Dietitian Nutritionists and the supervision of MDN faculty. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6500 Advanced Community Nutrition and Health Promotion</b>	<b>G</b>	<b>3</b>
Advanced study of community needs assessment, national nutrition policy, design and evaluation of programs and cultural factors to promote the health and nutritional status of the community. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6589 Supervised Practice: Community</b>	<b>G</b>	<b>1 - 5</b>
Supervised practice experience in a specific health care system with community outpatient emphasis to achieve professional competencies. The student works under the direction of Registered Dietitian Nutritionists and the supervision of MDN faculty. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN). Repeatable to a maximum of 5 cr hrs or 3 completions.		
<b>6800 Nutrition Entrepreneurship, Management, and Leadership</b>	<b>G</b>	<b>3</b>
Managerial leadership principles for the development/administration of clinical departments in the health care system. Integration of leadership literature and content with facilitated group discussion and learning circles to develop the skills required of leaders.		
<b>6889 Supervised Practice: Food Service Management</b>	<b>G</b>	<b>1 - 5</b>
Supervised practice experience in a specific health care system with community outpatient emphasis to achieve professional competencies. The student works under the direction of Registered Dietitian Nutritionists and the supervision of MDN faculty. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN). Repeatable to a maximum of 5 cr hrs or 3 completions.		
<b>6900 Practice-Based Research in Dietetics and Nutrition</b>	<b>G</b>	<b>3</b>
Overview of research in the Nutrition and Dietetics. This course is intended to prepare students to be educated consumers of research and to enable them to find, understand, interpret, and apply research findings in their professional practice. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		
<b>6950 Evidence Based Analysis in Nutrition and Dietetics</b>	<b>G</b>	<b>3</b>
An in depth examination of the role of nutrients and food components and their impact of body systems and health. Prereq: Admission to Master of Dietetics and Nutrition Program (MDN).		

### Materials Science and Engineering

<b>2010 Introduction to Engineering Materials</b>	<b>U</b>	<b>3</b>
Introduction to the properties (mechanical, electrical, thermal, diffusive, degradative, magnetic, optical), structure, and processing of engineering materials, including ceramic, metals, polymers, biological, and composite materials. Prereq: Physics 1250 or 1260, Math 1151 or 1161, and Chemistry 1210 or 1250 or 1910H; or permission of instructor.		
<b>2194 Group Studies in Materials Science and Engineering</b>	<b>U</b>	<b>0 - 6</b>
Special topics in MSE not offered in other courses. Repeatable to a maximum of 12 cr hrs or 8 completions.		

## 2241      Structure and Characterization of Materials      U      3

Atomic structure of materials and its determination using X-ray diffraction techniques. Introduction crystalline defects and microstructure. Characterizing and quantifying materials microstructure using optical and electron microscopy.  
Prereq: 2010, Physics 1250 or 1260, Math 1151 or 1161, and Chem 1210 or 1250; and enrollment as MatScEn-BS student; or permission of instructor. Not open to students with credit for both 341 and 342.

## 2251      Thermodynamics of Materials      U      3

Fundamental basis of three laws of thermodynamics, phase equilibria, reaction equilibria, solution theory, and phase diagrams and electrochemistry.  
Prereq: 2010, Physics 1250 or 1260, Math 1151 or 1161, and Chem 1210 or 1250; and enrollment as MatScEn-BS or WeldEng-BS student; or permission of instructor. Not open to students with credit for both 401 and 525.

## 2321      Modeling and Simulation Lab I      U      3

A modeling and simulation laboratory appropriate to sophomore-level study in materials science and engineering.  
Prereq: 2010, Physics 1250 or 1260, Math 1151 or 1161, and Chem 1210 or 1250; and enrollment as MatScEn-BS student; or permission of instructor.

## 2331      Structure and Characterization Lab      U      2

Companion laboratory course to MatScEn 2241. Experiments on X-ray diffraction, scanning electron microscopy, optical microscopy, and stereology with applications. Statistical treatment of data and technical reporting.  
Prereq: 2010, Physics 1250 or 1260, Math 1151 or 1161, and Chem 1210 or 1250; and enrollment as MatScEn-BS student; or permission of instructor. Not open to students with credit for 282.

## 3141      Transformation and Processing of Materials      U      3

Introduction to transformations, and the relationship between microstructure, properties, and processing in metals, ceramics, semiconductors, and polymers.  
Prereq: 2251, and enrollment as MatScEn-BS or WeldEng-BS major; or permission of instructor.

## 3151      Transport Phenomena and Kinetics      U      3

Provides students with concepts related to transport phenomena and kinetics as applied to processing of metals, ceramics, polymers, and composite materials.  
Prereq: 2010 and 2241; and Math 2177 or 2415; or 2174; and enrollment as MatScEn-BS major; or permission of instructor.

## 3189      Professional Practice in Industry      U      ½ - 3

Preparation of a comprehensive report based on employment experience in a co-op or job in industry.  
Repeatable to a maximum of 8 or hrs or 8 completions. This course is graded S/U.

## 3193.01      Individual Studies in Materials Science & Engineering      U      ½ - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.

## 3193.02      Individual Studies in Materials Science & Engineering      U      ½ - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.

## 3261      Introduction to the Mechanical Behavior of Materials      U      3

Survey of the mechanical response of solids to forces and stresses. Responses studied include elastic, viscoelastic, plastic deformation and fracture.  
Prereq: 2010, and MechEng 2020 or 2040, and enrollment as MatScEn-BS student; or permission of instructor.

## 3271      Electronic Properties      U      3

Introduction to structure, property, and applications of electronic materials. Includes electronically and ionically conducting materials, dielectrics, and optical and magnetic materials.  
Prereq: 2010; and Math 1151 or 1161; and Physics 1251 or 1261; and enrollment as MatScEn-BS student; or permission of instructor. Not open to students with credit for 371.

## 3321      Modeling and Simulation Lab II      U      2

Modeling and simulation techniques appropriate to junior-level study in materials science and engineering.  
Prereq: 2321, 3141, and 3151, and enrollment as MatScEn-BS student; or permission of instructor.

## 3331      Materials Science and Engineering Lab I      U      2

Laboratory experiments related to materials processes and properties. Introduction to experimental techniques used in materials fields. Data analysis, presentation, and technical writing skills.  
Prereq: 2331, and enrollment as MatScEn-BS major; or permission of instructor. Not open to students with credit for both 581.01 and 581.02.

## 3332      Materials Science and Engineering Lab II      U      2

Laboratory experiments related to materials application and performance. Advanced experimental techniques and analysis in these areas. Technical writing skills at fully professional level.  
Prereq: 2241, 2331, and 2251; and enrollment as MatScEn-BS student; or permission of instructor. Not open to students with credit for both 581.02 and 581.03.

## 3333      Materials Science and Engineering Laboratory for Welding Engineering Students      U      2

Lab experiments related to heat treating, casting, welding, materials characterization, and properties. Introduction to experimental techniques in materials science. Development of technical writing skills.  
Prereq: WeldEng 2001 and 2601; and enrollment as WeldEng-BS major; or permission of instructor. Not open to students majoring in MatScEn.

## 3611      Biological Response to Biomaterials      U      3

The biological response to biomaterials implanted within the human body.  
Prereq: 2010, or permission of instructor.

## 4181      Materials Selection      U      2

Systematic and quantitative strategies for selecting materials and processes as a foundation for designing with materials.  
Prereq: 2241, 2331, 2251, 2321, and enrollment as MatScEn-BS major; or permission of instructor. Not open to students with credit for 600.

## 4193.01      Individual Studies in Materials Science & Engineering      U      ½ - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.

## 4193.02      Individual Studies in Materials Science & Engineering      U      ½ - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.

## 4194      Group Studies in Materials Science and Engineering      U      0 - 6

Special topics in Materials Science and Engineering.  
Repeatable to a maximum of 12 or hrs or 8 completions.

## 4321      Modeling and Simulation-Based Design      U      3

Practical modeling and simulation techniques appropriate to senior-level design in materials science and engineering.  
Prereq: 2321, 3321, and enrollment as MatScEn-BS major; or permission of instructor.

## 4381.01      Design and Professional Practice I      U      3

An in-depth design project to foster independent thinking and to develop problem-solving skills. Design of experiments, applied statistics, presentation and communication skills will be discussed.  
Prereq: 3141, 3151, and 3331. Prereq or concur: 3261, 3271, or 3332, and enrollment as MatScEn-BS major; or permission of instructor.

## 4381.02      Design and Professional Practice I, Biomedical      U      3

First course in a two-course MSE Senior Design sequence with a biomedical engineering emphasis. Introduction to design principles; challenges of biomedical device design; projects focus on helping persons with disabilities.  
Prereq: 3141, 3151, 3331, and enrollment as MatScEn-BS major. Prereq or concur: 3261, 3271, or 3331.

## 4382.01      Design and Professional Practice II      U      3

An in-depth design project to foster independent thinking and to develop problem-solving skills. Design of experiments, applied statistics, presentation and communication skills will be discussed.  
Prereq: 4381.01, and enrollment as MatScEn-BS major; or permission of instructor.

## 4382.02      Design and Professional Practice II, Biomedical      U      3

Second course in a two-course MSE Senior Design sequence with a biomedical engineering emphasis. Applying design principles; challenges of biomedical device design; engineering and testing devices that focus on helping persons with disabilities.  
Prereq: 4381.02, and enrollment as MatScEn-BS major; or permission of instructor.

## 4998      Undergraduate Research      U      ½ - 3

Supervised undergraduate research on various topics.  
Repeatable to a maximum of 6 or hrs or 6 completions.

## 4999      Undergraduate Research      U      ½ - 3

Supervised undergraduate research on topics in Materials Science & Engineering.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 or hrs or 2 completions.

## 4999H      Undergraduate Honors Research      U      ½ - 3

Supervised research and project work arranged individually for honors students on topics in Materials Science & Engineering.  
Prereq: Honors standing, Sr standing in MatScEn major, and permission of instructor. Repeatable to a maximum of 6 or hrs or 6 completions.

## 300 Materials Science and Engineering

### 5193.01 Individual Studies in Materials Science & Engineering U G 0 - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.  
This course is graded S/U.

### 5193.02 Individual Studies in Materials Science & Engineering U G 0 - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.

### 5194 Group Studies in Materials Science & Engineering U G 0 - 6

Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.  
Repeatable to a maximum of 12 or hrs or 8 completions.

### 5237 Photovoltaics Laboratory U G 4

Introduce student to basic techniques for fabrication and measurement of photovoltaic cells. Learn computer tools for simulation of photovoltaic cell characteristics. Obtain practical experience with contact and series resistance, spectral sensitivity, open circuit voltage, short circuit current, and quantum efficiency of photovoltaic devices and test structures fabricated in lab.  
Prereq: 3271 or ECE 3030, and enrollment in ECE or MatScEn major; or Grad standing in Engineering, Biological Sciences, or Math and Physical Sciences. Cross-listed in ECE.

### 5321 Computational Thermodynamics and Kinetics U G 2

Comprehensive background on computational thermodynamics and kinetics. Includes focus on CALPHAD (Calculation of Phase Diagram) methodology.  
Prereq: 2251 and 3151 or equivs, or Grad standing in MatScEn or WeldEng; or permission of instructor. Cross-listed in WeldEng 4121 and 7121.

### 5431 Advanced Metals Laboratory U G 1

Advanced laboratory covering various topics in metallic materials.  
Prereq: 2241, 2331, 3141, 3261, and 3332. Prereq or concur: 5441 or 5451; or permission of instructor. Not open to students with credit for 669, or to Grad students enrolled in MatScEn or WeldEng.

### 5441 Physical Metallurgy U G 3

Physical metallurgy of ferrous and non-ferrous alloys. Emphasis on alloy design, processing and structure-property relations.  
Prereq: 3141, 3261, and enrollment as MatScEn-BS major student; or Grad standing; or permission of instructor. Not open to students with credit for both 661 and 663.

### 5451 Molten Metal Processing U G 3

An advanced class in application of thermodynamics, kinetics, and macro-transport phenomena to primary metals production, refining, and solidification processing.  
Prereq: 2251 or 3151; or Grad standing; or permission of instructor. Not open to students with credit for 667, 668, 5451, ISE 5502, or 651.02. Cross-listed in ISE 5502.

### 5531 Ceramics Processing Laboratory U G 1

Laboratory experiments involving synthesis/fabrication and characterization of high performance technical ceramics.  
Prereq: 3141, 3261, 3271, 3332, and enrollment as MatScEn-BS major; or permission of instructor. Not open to students with credit for 619.

### 5532 Electronic, Optical, and Magnetic Properties Laboratory U G 1

Correlates electronic, optical, and magnetic properties of materials with structure, composition, and microstructure. Examples include resistivity, the Hall effect, and ferromagnetic/ferroelectric hysteresis.  
Prereq: 3141, 3261, 3271, 3332, and enrollment as MatScEn-BS major student; or permission of instructor. Not open to students with credit for 679.

### 5551 Ceramic Processing U G 3

Overview of ceramics processing, including essential topics of: powder synthesis/characterization, colloidal/sol-gel processing, shaping/consolidation, sintering, microstructure development and nanoceramics, and thin films/coating.  
Prereq: 3141, 3151, and enrollment as MatScEn-BS major; or Grad standing; or permission of instructor. Not open to students with credit for 615.

### 5552 Nanoscale Synthesis and Processing of Electronic Materials U G 3

Processing, structure and stability of materials in micro(nano)electronics. Thin film epitaxy, semiconductor heterostructures, quantum confinement, bandgap engineering, electronic properties of defects, nanolithography, self-assembled nanostructures.  
Prereq: 3141 and 3271, or permission of instructor. Not open to students with credit for 676.

### 5571 Electroceramics U G 3

Functional ceramics covering electrical, magnetic and optical properties of oxides. Emphasis is on the processing-microstructure-property correlation.  
Prereq: 3271, or permission of instructor. Not open to students with credit for 614.

### 5571.71 Electroceramics I: Electronic and Ionic Conductors U G 1½

Functional ceramic oxides covering electronic and ionic conductors and their applications in devices. Emphasis on the processing-microstructure-property correlation.  
Prereq: 3271, or permission of instructor. Not open to students with credit for 5571.

### 5571.72 Electroceramics II: Dielectric, Magnetic, and Optical Ceramics U G 1½

Dielectric, Magnetic, and Optical Ceramics and their applications in devices. Emphasis on the processing-microstructure-property correlation.  
Prereq: 3271, or permission of instructor. Not open to students with credit for 5571.

### 5572 Materials for Energy Technology U G 3

Structure property relationships of materials in energy applications. Photovoltaic materials, solid state photonic materials, electrochemical devices such as batteries, fuel cells and chemical sensors, superconductors, memory and nuclear materials.  
Prereq: 2241, and 3271 or ECE 2300; and enrollment as MatScEn-BS major; or Grad standing; or permission of instructor.

### 5605 Quantitative Introduction to Materials Science U G 3

A quantitative survey of the key elements related to the processing, structure and properties of materials. Structural materials and core aspects are emphasized. Intended for MS/PhD students enrolled in MatScEn who come from a non-MatScEn background.  
Prereq: Grad standing in MatScEn or WeldEng; or permission of instructor. Not open to students with credit for 2010, 6605, or 605, or to students enrolled in MatScEn-BS.

### 5611 Materials in Medicine U G 3

The materials science of plastics, metals and ceramics currently used to replace or supplement tissues within the human body.  
Prereq: 2010 and 3611; or Grad standing; or permission of instructor. Not open to students with credit for both 645 and 646.

### 5631 Biomaterials Laboratory U G 1

A laboratory experience in the processing and characterization of biomaterials used for the replacement of human tissues.  
Prereq or concur: 5611 or 5641; or permission of instructor. Not open to students with credit for 649.

### 5641 Structure-Property Relationships of Polymers U G 3

An understanding of the structure/property relationships that drive the continued expansion of polymers into a wide array of applications.  
Prereq: 2010, CPHR 2.0 or higher, and rank 3 or 4 in Engineering; or Grad standing; or permission of instructor. Not open to students with credit for both 642 and 643.

### 5651 Biomaterials Processing U G 3

The relationship between the processing of biomaterials - metals, polymers and ceramics - and the impact that these steps have on final biomedical properties.  
Prereq: 5611 or 5641; or permission of instructor.

### 5711.70 Introduction to Composites U G 1½

In this seven-week course, students will gain the theoretical background as well as practical knowledge of the structure and properties of ceramic, metal, and polymer matrix composites.  
Prereq: 3261, or Grad standing, or permission of instructor. Not open to students with credit for 644 or 5711.

### 5761.71 Mechanical Behavior of Crystalline Solids at Lower Temperature U G 1½

Strength and Deformation Mechanisms in Crystalline Solids at Low Temperatures.  
Prereq: 3261 or 3332; or Grad standing; or permission of instructor. Not open to students with credit for MatScEn 5761.

### 5761.72 Mechanical Behavior of Crystalline Solids at High Temperatures U G 1½

Strength and deformation mechanisms in crystalline solids at high temperatures.  
Prereq: 3261 or 3332; or Grad standing; or permission of instructor.

### 5763.70 Fracture and Fatigue of Engineering Materials U G 1½

This seven week course will provide a background in fracture and fatigue with a survey of material-specific mechanisms.  
Prereq: 3261, or Grad standing; or permission of instructor. Not open to students with credit for 5763.

### 5774 Polymer Membranes U G 3

Membrane separation mechanisms, transport models, permeability computations/measurements, membrane materials/types/modules, membrane contactors/reactions, and applications.  
Prereq: ChBE 3508 (509), or Grad standing; or permission of instructor. Not open to students with credit for 774 or ChBE 774. Cross-listed in ChBE.

### 5951 Corrosion and Failure Analysis U G 3

Covers fundamentals of environmental degradation of materials, corrosion phenomenology and corrosion prevention strategies. Also methodologies for root cause analysis of failed components.  
Prereq: Sr or Grad standing in Engineering, or permission of instructor.

### 5971 Solid State Science U G 3

In-depth theory of electronic structure of materials as related to the materials' atomistic structure. The origins of the mechanical, optical and magnetic properties are discussed.  
Prereq: 2010 and 3271; or permission of instructor.

## Materials Science and Engineering 301

<b>6193.01</b>	<b>Individual Studies in Materials Science and Engineering</b>	<b>G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>6193.02</b>	<b>Individual Studies in Materials Science &amp; Engineering</b>	<b>G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>6194</b>	<b>Group Studies in Materials Science and Engineering</b>	<b>G</b>	<b>0 - 6</b>
Special topics in Materials Science and Engineering. Repeatable to a maximum of 12 cr hrs or 8 completions.			
<b>6295</b>	<b>Superconducting Materials and Properties</b>	<b>G</b>	<b>2</b>
Introduction to superconducting materials and phenomena. It will focus on the description of various materials and their properties in terms of basic superconducting phenomena, and the influence of materials-based properties on these phenomena. Prereq: Grad standing in Material Science & Engineering, Welding, or Engineering; or Math and Physical Sciences; or permission of instructor.			
<b>6700</b>	<b>Essentials of Materials Science for High School Educators</b>	<b>G</b>	<b>2</b>
Provides academic background and quantitative examples to the demonstrations in the ASM Materials Foundation Materials Camps for Teachers. This requires the students in this class to deploy related content in their high school classroom settings. Prereq: Graduate Non-Degree status, or permission of instructor.			
<b>6715</b>	<b>Principles of the Characterization of Materials</b>	<b>G</b>	<b>2</b>
Fundamentals of beam-solid interactions and their application to the characterizing the structure and composition of materials. The emphasis of this course will be on techniques utilizing X-ray and electron probes. Prereq: Grad standing in MatScEn or WeldEng, or permission of instructor. Not open to students with credit for 715.			
<b>6730</b>	<b>Thermodynamics of Materials</b>	<b>G</b>	<b>3</b>
Thermodynamics of mixtures and phase equilibria relevant to metallurgy and materials science. Prereq: Grad standing or permission of instructor. Not open to students with credit for 730.			
<b>6735</b>	<b>Corrosion Science and Materials Electrochemistry</b>	<b>G</b>	<b>2</b>
Electrochemistry fundamentals, corrosion thermodynamics and kinetics, experimental approaches, corrosion phenomenology, corrosion control strategies, nonmetallic material degradation, electrochemistry of batteries, fuel cells, and electrodeposition. Prereq: Grad standing in MatScEn or permission of instructor. Not open to students with credit for 735.			
<b>6737</b>	<b>Diffusion and Interface Kinetics</b>	<b>G</b>	<b>3</b>
Detailed atomic and phenomenological descriptions of rate limiting steps, diffusion, and interface kinetics with applications involving mass transport and phase transitions in the solid state. Prereq: Grad standing in MatScEn, or permission of instructor. Not open to students with credit for 737.			
<b>6740</b>	<b>Practical Scanning Electron Microscopy Laboratory</b>	<b>G</b>	<b>2</b>
Provides basic understanding of scanning electron microscopy characterization methods, understanding of sample preparation & compatibility, various imaging modes, and analytical techniques. This course focuses primarily on the practical operation of a scanning electron microscope, and not on its theoretical background. Prereq: Grad standing; or permission of instructor. This course is graded S/U.			
<b>6741</b>	<b>Practical Transmission Electron Microscopy Lab</b>	<b>G</b>	<b>2</b>
Transmission Electron Microscopy with emphasis on practical methods. Prereq: Grad standing; or permission of instructor.			
<b>6747</b>	<b>Structure and Defects in Materials</b>	<b>G</b>	<b>3</b>
Elements of crystallography, structure and defects in solids. Prereq: Grad standing in Chem, Engr, or Physics; or permission of instructor.			
<b>6756</b>	<b>Computational Materials Modeling</b>	<b>G</b>	<b>2</b>
Introduction to common computer modeling methods, including hands-on work with emphasis on the atomic and nano-scales. Prereq: Permission of instructor. Not open to students with credit for 756.			
<b>6756.71</b>	<b>Computational Materials Modeling - Continuum Scale</b>	<b>G</b>	<b>1</b>
Practical computational materials modeling and simulation techniques with focus on methods at the continuum scale. Prereq: Grad standing in MatScEn or permission of instructor. Not open to students with credit for 6756 or 756.			
<b>6756.72</b>	<b>Computational Materials Modeling - Atomic Scale</b>	<b>G</b>	<b>1</b>
Practical computational materials modeling and simulation techniques with focus on the atomic scale. Prereq: Grad standing in MatScEn or permission of instructor. Not open to students with credit for 6756 or 756.			

<b>6757</b>	<b>Advanced Metallic Materials and Processing</b>	<b>G</b>	<b>2</b>
A graduate class in design, processing and simulation of advanced metallic materials including alloys (ferrous and non-ferrous) and metal matrix composites. Prereq: Grad standing in AeroEng, ISE, MatScEn, MechEng, NuclrEn, or WeldEng; or permission of instructor. Not open to students with credit for ISE 6557. Cross-listed in ISE 6557.			
<b>6765</b>	<b>Mechanical Behavior of Materials</b>	<b>G</b>	<b>2</b>
Mechanical response of materials to loads and deformation. Prereq: Grad standing in MatScEn, or permission of instructor. Not open to students with credit for 765.			
<b>6777</b>	<b>Electronic Properties of Materials</b>	<b>G</b>	<b>2</b>
In-depth analysis of the structure - property relationships and application of materials in electronics, optics and magnetics. Prereq: Grad standing in Engineering or Science or permission of instructor. Not open to students with credit for 777.			
<b>6778</b>	<b>Magnetic Materials</b>	<b>G</b>	<b>2</b>
This course teaches the basic properties of magnetic materials in a wide class of materials including metals, insulators, semiconductors. The relationships between structure, composition, processing, and magnetic properties will be reviewed with a special focus on the atomic origins of magnetism and the ability to engineer these mechanisms through alloying or doping, or layered structures. Prereq: Grad standing in Engineering or Mathematical and Physical Science; or permission of instructor.			
<b>6999</b>	<b>Graduate Research in Materials Science and Engineering</b>	<b>G</b>	<b>½ - 18</b>
Research for thesis purposes only. Repeatable. This course is graded S/U.			
<b>7193.01</b>	<b>Individual Studies in Materials Science and Engineering</b>	<b>G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.02</b>	<b>Individual Studies in Materials Science &amp; Engineering</b>	<b>G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>7194</b>	<b>Group Studies in Materials Science and Engineering</b>	<b>G</b>	<b>0 - 6</b>
Special topics in Materials Science and Engineering. Repeatable to a maximum of 12 cr hrs or 8 completions.			
<b>7531</b>	<b>Epitaxial Heterostructures</b>	<b>G</b>	<b>2</b>
Science and techniques behind thin film growth and engineering for combining different materials, altering chemical composition at the nanometer scale, while controlling defects and strain. Epitaxial crystal growth will be explained. Students will gain an understanding of the kinetics, thermodynamics, and technology involved in epitaxial heterostructures and self-assembled nanostructures. Prereq: Grad standing. Cross-listed in ECE.			
<b>7818</b>	<b>Advanced Topics in Corrosion Science</b>	<b>G</b>	<b>2</b>
Advanced topics in corrosion science. Prereq: 6735. Not open to students with credit for 881.			
<b>7835</b>	<b>Point Defects in Crystalline Materials</b>	<b>G</b>	<b>2</b>
A thermodynamic and electrochemical treatment of the formation, concentrations, mobilities, and interactions of atomic, ionic, and electronic point defects in materials at high temperatures. Prereq: 6730 and 6737, or permission of instructor. Not open to students with credit for 835.			
<b>7845</b>	<b>Solid Surfaces and Interfaces</b>	<b>G</b>	<b>2</b>
Elements of surface and interface science. Thermodynamics, structure, microstructure and kinetics of interfacial phenomena in materials. Prereq: 6730, 6737, and 6747. Not open to students with credit for 845.			
<b>7850</b>	<b>Structural Transformations</b>	<b>G</b>	<b>2</b>
Structural transformations in materials with emphasis on basic phenomena. Selected topics will be developed based on classical approaches and recent advances. Prereq: 6730 and 6737. Not open to students with credit for 850.			
<b>7855</b>	<b>Electron Diffraction, Imaging and Spectroscopies</b>	<b>G</b>	<b>2</b>
Advanced topics in characterizing materials using transmission electron microscopy. Topics covered include electron diffraction techniques, important imaging modes, and widely used spectroscopy methods. Prereq: 6715, or permission of instructor. Not open to students with credit for 855.			
<b>7862</b>	<b>Microstructural Elasticity</b>	<b>G</b>	<b>2</b>
Elastic interaction between vacancies, dislocations, faults, grain boundaries, interfaces, precipitates, transforming particles, cracks, and indentations controls material properties, primarily mechanical. Prereq: 6765.			

## 302 Materials Science and Engineering

<b>7895</b>	<b>Graduate Seminar in Materials Science and Engineering</b>	<b>G</b>	<b>1</b>
Presentations and discussion by graduate students, outside speakers on thesis research, and current problems in Materials Science and Engineering. Prereq: Grad standing in MatScEn, or permission of instructor. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8000</b>	<b>MSE PhD Dissertation Overview</b>	<b>G</b>	<b>1</b>
Public review of PhD research and committee guidance on dissertation topic. Prereq: Only open to students who have passed the MSE PhD Candidacy Exam. This course is graded S/U.			
<b>8193.01</b>	<b>Individual Studies in Materials Science and Engineering</b>	<b>G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			
<b>8193.02</b>	<b>Individual Studies in Materials Science &amp; Engineering</b>	<b>G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.			
<b>8194</b>	<b>Group Studies in Materials Science and Engineering</b>	<b>G</b>	<b>0 - 6</b>
Special topics in Materials Science and Engineering. Repeatable to a maximum of 12 or hrs or 8 completions.			
<b>8999</b>	<b>Graduate Research in Materials Science and Engineering</b>	<b>G</b>	<b>½ - 18</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## Mathematics

<b>1050</b>	<b>Precollege Mathematics I</b>	<b>U</b>	<b>5</b>
Fractions and decimals, basic algebra, graphing lines, factoring, systems of equations. Credit for this course will not count toward graduation in any degree program. Prereq: 1040 (040) or 050, or Math Placement Level T, or permission of department. Not open to students with credit for any Math course above 1050 (050). This course is available for EM credit.			
<b>1060</b>	<b>Supplementary Pre-College Mathematics</b>	<b>U</b>	<b>2</b>
Math 1060 is a terminal math course designed to satisfy the Quantitative Reasoning: Basic Computation category of the General Education Requirement (GE). Students may follow-up with Math 1116 to satisfy the Mathematical or Logical Analysis category of the General Education Requirement (GE). Students who wish to take math courses higher than Math 1116 should take Math 1075 rather than Math 1060. Prereq: C- or better in 1050, or Math placement level S. Not open to students with credit for any higher numbered math class, or for any quarter class numbered higher than 50. GE quant reason basic computation course.			
<b>1074</b>	<b>Transition Pre-College Mathematics II</b>	<b>U</b>	<b>3</b>
Graphing lines, systems of two equations, factoring, rational expressions, quadratic equations, applications. Credit for this course will not count toward graduation in any degree program. This course is used only for transfer credit. Prereq: 1050 (50). Not open to students with credit for any Math course numbered 1075 (75) or above. GE quant reason basic computation course.			
<b>1075</b>	<b>Precollege Mathematics II</b>	<b>U</b>	<b>4</b>
Algebraic, rational, and radical expressions; functions and graphs; quadratic equations; absolute value; inequalities; and applications. Credit for this course will not count toward graduation in any degree program. Prereq: 1074 or 075; or a grade of C- or above in 1050; or Math Skills Assessment Level R or S; or ACT math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for any Math course above 1075, except for 1116; or for any quarter-system course above 075, except for 116. This course is available for EM credit. GE quant reason basic computation course.			
<b>1116</b>	<b>Excursions in Mathematics</b>	<b>U</b>	<b>3</b>
Critical thinking and problem solving, with relevant topics met in everyday life. Appropriate for non-science majors. Prereq: 1073, 1074, 1075, 75, or 104; or Math Placement Level R or above; or ACT math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 1152 (153) or above. GE quant reason math and logical anyl course.			
<b>1118</b>	<b>Mathematics for Architects</b>	<b>U</b>	<b>3</b>
Topics in geometry for architecture majors. Prereq: A grade of C- or above in 1148 or 1150, or credit for 148 or 150, or Math Placement Level M or L; and enrollment in School of Architecture.			

<b>1120</b>	<b>Precalculus with Review I</b>	<b>U</b>	<b>5</b>
This is the first course of a two course sequence covering precalculus. In this first course, topics covered will include an introduction to functions (linear, polynomial and rational), equations and inequalities along with appropriate review. This course is designed with an emphasis on reviewing these fundamental basic algebra skills as they apply to precalculus in a just-in-time manner. Prereq: A grade of C- or above in 1075; or grade of B- or above in 1050; or Math Placement level R. Not open to students with credit for 1121 or above. GE quant reason math and logical anyl course.			
<b>1121</b>	<b>Precalculus with Review II</b>	<b>U</b>	<b>5</b>
This is the second course of a two course sequence in precalculus. In this second course, topics covered will include an introduction to functions (exponential, logarithmic, trigonometric), equations, inequalities and right-angle trigonometry with appropriate review. This course has an emphasis on reviewing fundamental basic algebra skills as they apply to precalculus in a just-in-time manner. Prereq: A grade of C- or above in 1120. GE quant reason math and logical anyl course.			
<b>1125</b>	<b>Mathematics for Elementary Teachers I</b>	<b>U</b>	<b>5</b>
Sequence 1125-1126 involves numbers, geometry, measurement, and mathematical reasoning, for prospective elementary school teachers. Prereq: A grade of C- or above in 1075; or credit for 1074, 75, or 104; or Math Placement Level R or above; or ACT math subscore of 22 or higher that is less than 2 years old; and enrollment in Early Childhood or Special Education major, or in Middle Childhood major or pre-major with area of concentration different than Math.			
<b>1126</b>	<b>Mathematics for Elementary Teachers II</b>	<b>U</b>	<b>5</b>
Continuation of 1125: numbers, geometry, measurement, and mathematical reasoning, for prospective elementary school teachers. Prereq: A grade of C- or above in 1125; and enrollment in Early Childhood or Special Education major, or in Middle Childhood major or pre-major with area of concentration different than Math.			
<b>1130</b>	<b>College Algebra for Business</b>	<b>U</b>	<b>4</b>
Algebraic, exponential, and logarithmic functions. Matrix algebra. Applications to business. Prereq: A grade of C- or above in 1075; or credit for 104, or Math Placement Level M or N, or ACT math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 1131 (131), or for any Math course numbered 1149 (150) or above. This course is available for EM credit. GE quant reason math and logical anyl course.			
<b>1131</b>	<b>Calculus for Business</b>	<b>U</b>	<b>5</b>
Survey of calculus of one and several variables; applications to business. Prereq: A grade of C- or above in 1130, 1144, 1148, or 1150, or credit for 130, 148, or 150, or Math Placement Level L. Not open to students with credit for 1151 (151) or above, or 1134 (132). This course is available for EM credit. GE quant reason math and logical anyl course.			
<b>1134</b>	<b>Transition Calculus for Business</b>	<b>U</b>	<b>3</b>
Integral and multi-variable calculus for business. This course is used only for transfer credit. Prereq: 131, or equiv. Not open to students with credit for 132. This course is available for EM credit.			
<b>1135</b>	<b>Number and Operations for Teachers</b>	<b>U</b>	<b>5</b>
The first course in a two semester sequence for teachers of elementary and middle grade students. This course focuses on concepts of numbers and arithmetic operations, including modern and historical perspectives. Prereq: A grade of C- or above in 1075; or credit for 1074, 75, or 104; or Math Placement Level R or above; or ACT math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 106.			
<b>1136</b>	<b>Measurement and Geometry for Teachers</b>	<b>U</b>	<b>5</b>
This course is the second in a two semester sequence for teachers of elementary and middle grade students. This course focuses on concepts of measurement and geometry, including modern and historical perspectives. Prereq: A grade of C- or above in 1135.			
<b>1138</b>	<b>Fundamentals of Mathematics for Engineers</b>	<b>U</b>	<b>4</b>
This application-oriented, hands-on, introduction to engineering mathematics course will provide an overview of the salient math topics most heavily used in beginning engineering courses. All math topics will be presented within the context of an engineering application, and reinforced through extensive examples of their use in the core engineering courses. Prereq: Math Placement Level N. Not open to students with credit for 1151 or Engr 1138. Cross-listed in Engr.			
<b>1140</b>	<b>Calculus with Review I</b>	<b>U</b>	<b>4</b>
This is the first of a two semester course sequence. The topics covered in Math 1140 will include differential calculus of one real variable, with review of important algebra and pre-calculus concepts. Calculus with Review I is a course designed with an emphasis on reviewing these fundamental pre-calculus skills as they apply to calculus. Prereq: A grade of C- or above in 1148 and 1149, or in 1144, 1150, or 150, or Math Placement Level L. Not open to students with credit for 1141, or 1151 or above, or 151.xx or above. GE quant reason math and logical anyl course.			



**1141 Calculus with Review II U 4**

This is the second of a two semester course sequence. The topics covered in Math 1141 will include differential calculus of one real variable, with review of important algebra and pre-calculus concepts. Math 1141 is a course designed with an emphasis on reviewing these fundamental pre-calculus skills as they apply to calculus.  
Prereq: A grade of C- or above in 1140. Not open to students with credit for 1151 or above (151.xx, or above). GE quant reason math and logical anyl course.

**1144 Precalculus Transition U 4**

Math 150 done in a semester: Properties and applications of rational, logarithmic, exponential, trigonometric, and inverse trigonometric functions. Introduction to complex numbers. This course is used only for transfer credit.  
Prereq: 1148 (148), or permission of department. Not open to students with credit for 150 or above.

**1148 College Algebra U 4**

Functions: polynomial, rational, radical, exponential, and logarithmic. Introduction to right-angle trigonometry. Applications.  
Prereq: A grade of C- or above in 1075, or credit for 104 or 148, or Math Placement Level N, or ACT math subscore of 22 or higher that is less than 2 years old, or permission of department. Not open to students with credit for 1144, or for Math courses numbered 1150 (150) or above. This course is available for EM credit. GE quant reason math and logical anyl course.

**1149 Trigonometry U 3**

Trigonometric functions and their properties. Vectors, polar coordinates and complex numbers.  
Prereq: A grade of C- or above in 1148, or permission of department. Not open to students with credit for 1144, or for any Math course numbered 1150 (150) or above. This course is available for EM credit. GE quant reason math and logical anyl course.

**1150 Precalculus U 5**

Functions: polynomial, rational, radical, exponential, logarithmic, trigonometric, and inverse trigonometric. Applications.  
Prereq: Math Placement Level M. Not open to students with credit for 1144, 1148, or for 1149 or above, or for any quarter Math course numbered 150 or above. This course is available for EM credit. GE quant reason math and logical anyl course.

**1151 Calculus I U 5**

Differential and integral calculus of one real variable.  
Prereq: A grade of C- or above in 1148 and 1149, or in 1144, 1150, or 150, or Math Placement Level L. Not open to students with credit for 1152 or 152.xx, or above. This course is available for EM credit. GE quant reason math and logical anyl course.

**1152 Calculus II U 5**

Integral calculus, sequences and series, parametric curves, polar coordinates, (optional: vectors).  
Prereq: A grade of C- or above in 1114 (114), 1151, 1156, 1161.xx, 152.xx, 161.xx, or 161.01H. Not open to students with credit for 1172, 1181H or any Math class numbered 1500 or above, or with credit for 153.xx, or Math courses numbered 162.xx or above. This course is available for EM credit. GE quant reason math and logical anyl course.

**1154 Calculus I for Engineering Technology U 4**

Calculus I for Engineering Technology is the first in a two-course calculus sequence specifically designed for Engineering Technology. It covers standard Calculus topics including limits, differentiation, integration, optimization, and approximation with an emphasis on building mathematical intuition, problem solving ability and using appropriate technology to find solutions.  
Prereq: A grade of C- or above in 1148 and 1149, or grade of C- or above in 1144 or 1150, or Math Placement Level L. Not open to students with credit for 2153 or above.

**1155 Calculus II for Engineering Technology U 4**

Calculus II for Engineering Technology is the second in a two-course calculus sequence specifically for Engineering Technology. It covers standard Calculus topics including related rates, Taylor Polynomial approximations, differential equations and functions of several variables with an emphasis on building mathematical intuition, problem solving and using appropriate technology to find solutions.  
Prereq: A grade of C- or above in 1154.

**1156 Calculus for the Biological Sciences U 5**

Differential calculus and mathematical modeling in the life sciences.  
Prereq: A grade of C- or above in 1148 and 1149, or a grade of C- or above in 1150, or credit for 150, or Math Placement Level L. Not open to students with credit for 1151 (151.xx) or above. GE quant reason math and logical anyl course.

**1161.01 Accelerated Calculus I U 5**

Differential and integral calculus of one real variable. Intended for students having prior experience with calculus.  
Prereq: Math Placement Level L, and previous calculus experience. Not open to students with credit for any Math course numbered 1152 or above, or for the quarter-system Math courses 151.xx and 152.xx, or for any quarter-system course numbered 162 or above. GE quant reason math and logical anyl course.

**1161.02 Accelerated Calculus I for Honors Engineers U 5**

Differential and integral calculus of one real variable. Intended for students in Fundamentals of Engineering for Honors (FEH).  
Prereq: Math Placement Level L, and previous calculus experience. Not open to students with credit for 1152, or 151.xx and 152.xx, or 162 or above. GE quant reason math and logical anyl course.

**1165 Math for Middle School Teachers I U 5**

Algebra and reasoning for middle school teachers.  
Prereq: A grade of C- or above in 1148 and 1149, or in 1150, or credit for 150, or Math Placement Level L; and major or pre-major in Middle Childhood Education, within either ASC or EHE.

**1166 Math for Middle School Teachers II U 5**

Geometry for middle school teachers.  
Prereq: A grade of C- or above in 1165, and major or pre-major in Middle Childhood Education either within ASC or within EHE.

**1172 Engineering Mathematics A U 5**

Techniques of integration, Taylor series, differential calculus of several variables. Applications.  
Prereq: A grade of C- or above in 1114 (114), 1151, 1156, 1161.xx, 152.xx, 161.xx, or 161.01H. Not open to students with credit for 1152, 1534 (153.xx), or 1544 (154), or for any Math class numbered 1172 or above, or for any quarter-system Math class numbered 254.xx or above. Not open to students majoring in Math, pre-Actuarial Science, or Actuarial Science. This course is available for EM credit.

**1181H Honors Calculus I U 5**

Single variable calculus treated in depth.  
Prereq: 1151 or 151.xx, and permission of department. GE quant reason math and logical anyl course.

**1187H Honors Problem Solving U 1 - 2**

Problem solving beyond what is encountered in standard programs.  
Prereq: Permission of department. Repeatable to a maximum of 8 or hrs or 4 completions. This course is graded S/U.

**1193 Individual Studies in Mathematics U 1 - 3**

Individual studies.  
Prereq: Permission of department. Repeatable to a maximum of 6 or hrs or 2 completions. This course is graded S/U.

**1194 Group Studies in Mathematics U 1 - 3**

Designed to give groups of undergraduate students an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of department. Repeatable to a maximum of 6 or hrs or 2 completions.

**1194H Honors Group Studies in Mathematics U 1 - 3**

Designed to give groups of honors undergraduate students an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of department. Repeatable to a maximum of 6 or hrs or 2 completions.

**1295 Introductory Seminar U 1**

Seminar on mathematical topics for beginning math majors.  
Prereq: Enrollment in Math major, or permission of department. This course is graded S/U.

**1534 Transition Calculus II U 3**

Indeterminate forms, improper integrals, infinite series, parametric curves, vectors and vector functions. This course is used only for transfer credit.  
Prereq: A grade of C- or above in 152.xx, 161.xx, or 161.01H. GE quant reason math and logical anyl course.

**1544 Transition Engineering Calculus U 3**

Integral calculus, Taylor series, differential calculus of several variables. Applications. Intended for students majoring in Engineering. This course is used only for transfer credit.  
Prereq: A grade of C- or above in 152.xx, or equiv.

**2010S Intersections of Mathematics and Society: Hidden Figures U 3**

This course examines the intersections of race, gender, and mathematics as it relates to the accomplishments of the African-American mathematicians featured in the book. We analyze how mathematics and the advancement of American society were intertwined from WWII to the Space Race and focus on understanding the mathematical tools used by human computers and scientists at Langley during this time.  
Prereq: A grade of C- or above in 1148 and 1149; or a grade of C- or above in 1150; or Math Placement Level L. GE cultures and ideas and diversity soc div in the US and service learning course.

**2137 Algebra and Coordinate Geometry for Teachers U 3**

This is one of two independent courses which follow Math 1136 to provide necessary content for middle grade teachers. This course focuses on algebra, coordinate geometry, and their connections through equations in one or more unknowns. Modern and historical perspectives are woven throughout.  
Prereq: A grade of C- or above in 1136; and a grade of C- or above in 1149 or 1150, or credit for 150, or math placement level L.

**2138 Calculus and its History for Teachers U 3**

This is one of two independent courses which follow Math 1136 to provide necessary content for middle grade teachers. This course focuses on functions and calculus, including modern and historical perspectives.  
Prereq: A grade of C- or above in 1136; and a grade of C- or above in 1149 or 1150, or credit for 150, or math placement level L.

## 304 Mathematics

<b>2153</b>	<b>Calculus III</b>	<b>U</b>	<b>4</b>
Multivariable differential and integral calculus. Prereq: A grade of C- or above in 1152, 1172, 1534, 1544, 1181H, or 4181H, or credit for 153.xx, 154, 162.xx, or 162.01H. Not open to students with credit for any course 2153 or above, or for any quarter-system class 254.xx or above. This course is available for EM credit.			
<b>2162.01</b>	<b>Accelerated Calculus II</b>	<b>U</b>	<b>5</b>
Vectors, multivariable calculus, integral theorems. Prereq: A grade of C- or above in 1161.xx, 1181H, or 4181H. Not open to students with credit for semester Math course above 2162.01, or for any quarter Math course numbered 254.xx or above.			
<b>2162.02</b>	<b>Accelerated Calculus II for Honors Engineers</b>	<b>U</b>	<b>5</b>
Accelerated multivariable calculus. Intended for students in Fundamentals of Engineering for Honors (FEH). Prereq: A grade of C- or above in 1161.xx, 1181H, or 4181H. Not open to students with credit for 2153, or for a semester Math course numbered 2162 or above, or for a quarter Math course numbered 263.xx or above.			
<b>2167</b>	<b>Calculus for Middle School Teachers</b>	<b>U</b>	<b>3</b>
Concepts of Calculus for Middle School teachers. Prereq: A grade of C- or above in 1165, or credit for 1164 (110); and enrollment in Middle Childhood Education major or pre-major, within ASC or EHE. Not open to students with credit for 111.			
<b>2168</b>	<b>History of Mathematics for Middle School Teachers</b>	<b>U</b>	<b>3</b>
Historical and mathematical discussion of topics in the middle school math curriculum. Prereq: A grade of C- or above in 2167, or credit for 111; and enrollment as a major or pre-major in Middle Childhood Education (within either ASC or EHE). Not open to students with credit for 212.			
<b>2173</b>	<b>Engineering Mathematics B</b>	<b>U</b>	<b>3</b>
Multiple integrals, line integrals, vector fields, second order ordinary differential equations. Prereq: 1172 or 1544 (154). Not open to students with credit for 2153, or for any Math course 2173 or above, or for any quarter-system Math course 254.xx or above.			
<b>2174</b>	<b>Linear Algebra and Differential Equations for Engineers</b>	<b>U</b>	<b>3</b>
Matrix theory, eigenvectors and eigenvalues, ordinary and partial differential equations. Prereq: 2173, and enrollment in Engineering, Physics, or Chemistry major; or permission of Math department. Not open to students with credit for both 2415 (415.xx) and 2568 (568 or 571), or with credit for 5520H (520H and 521H).			
<b>2177</b>	<b>Mathematical Topics for Engineers</b>	<b>U</b>	<b>4</b>
Multiple integrals, line integrals; matrix algebra; linear (ordinary and partial) differential equations. Prereq: 1172, 1544 (154), 2153, 2162.xx, 2182H, 4182H, 254.xx, 263.xx, 263.01H, or 264H; and a major or minor in Biochem, BiomedE, Chem, CEEGS, FABEng, MatScEn, CBE, Physics or WeldEng. Not open to students with credit for 2174 or 5520H, or with credit for both (i) 2415 (415), 2255 (255), or 4512 (512) and (ii) 2568 (568 or 571).			
<b>2182H</b>	<b>Honors Calculus II</b>	<b>U</b>	<b>5</b>
Multivariable calculus treated in depth. Prereq: A grade of C or above in 1181H or 4181H. Not open to students with credit for both 162.01H and 263.01H.			
<b>2193</b>	<b>Individual Studies in Mathematics</b>	<b>U</b>	<b>1 - 3</b>
Individual studies. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Mathematics</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of able undergraduate students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>2255</b>	<b>Differential Equations and Their Applications</b>	<b>U</b>	<b>3</b>
Ordinary differential equations, their series solutions, numerical methods, Laplace transforms, physical applications. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, 2182H, or 4182H, or credit for 254.xx, 263.xx, 263.01H, or 264H. Not open to students with credit for 2415, 5520H, 255, 415.xx, or 521H.			
<b>2366</b>	<b>Introduction to Discrete Mathematics</b>	<b>U</b>	<b>2</b>
Mathematical reasoning, logic, sets, functions, recursive definitions, elementary counting principles. Prereq: C- or better in 1131, 1151, 1161.xx, or 1181H; or credit for 132, 152.xx, 161.xx, 161.01H; or permission of department. Open only to majors in MIS (Management Information Systems). Not open to students with credit for 366.			
<b>2415</b>	<b>Ordinary and Partial Differential Equations</b>	<b>U</b>	<b>3</b>
Ordinary and partial differential equations: Fourier series, boundary and initial value problems. Prereq: 2153, 2162.xx, 2173, 2182H, 4182H, 254.xx, 263.xx, 263.01H, or 264H; or 2568 and either 1172 or 1544 (154). Not open to students with credit for 2255 (255), 5520H (521H), 2174, or 415.xx.			

<b>2568</b>	<b>Linear Algebra</b>	<b>U</b>	<b>3</b>
Matrix algebra, vector spaces and linear maps, bases and dimension, eigenvalues and eigenvectors, applications. Prereq: A grade of C- or above in 1172, 1544, 2153, 2162.xx, 2182H, or 4182H; or a grade of C- or above in both 1152 and CSE 2321. Not open to students with credit for 4568 or 5520H.			
<b>2568H</b>	<b>Honors Linear Algebra</b>	<b>U</b>	<b>3</b>
This course, an introduction to linear algebra, is aimed at math majors who want a rigorous background in finite-dimensional linear algebra and exposure to applications of modern relevance, including some practice in implementing ideas from this course on a computer. Prereq: A grade of C- or above in 2153, 2162.xx, 2182H, or 4182H; and permission of department. Not open to students with credit for 2568, 4568, or 5520H.			
<b>3295</b>	<b>Senior Seminar</b>	<b>U</b>	<b>1</b>
Seminar on mathematical topics and career possibilities for senior math majors and actuarial science majors. Prereq: Enrollment in Math or Actuarial Science major, and permission of department. This course is graded S/U.			
<b>3345</b>	<b>Foundations of Higher Mathematics</b>	<b>U</b>	<b>3</b>
Introduction to logic, proof techniques, set theory, number theory, real numbers. Prereq: Major or minor in Math, CSE, CIS, ECE, IMME, STAT, STEMED-PRE or STEMED-BS, and: If Math, IMME, STAT, STEMED-PRE or STEMED-BS: Prereq: A grade of C- or above in 2153, 2162.xx, 2173, or 2182H. If CIS, CSE or ECE: Prereq: A grade of C- or above in CSE 2321; and a grade of C- or above in 1161.xx, 1172, 1181H, 1534, 1544, 1152, or 4181H.			
<b>3345H</b>	<b>Honors Foundations of Higher Mathematics</b>	<b>U</b>	<b>3</b>
A systematic introduction to problem solving and proof-writing through interesting, non-trivial mathematics. This class serves as a bridge between a problem-oriented Calculus class and the more conceptual classes in the math major. Additionally, this class exposes students to some of math's greatest intellectual successes. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, or 2182H; and permission of department. Not open to students with credit for 3345.			
<b>3350</b>	<b>Introduction to Mathematical Biology</b>	<b>U</b>	<b>3</b>
Introduction to quantitative and qualitative analysis of several mathematical models for biological systems. Prereq: C- or better in Math 2255, 2415, 5520H; or credit for 255, 415.xx, or 521H. Not open to students with credit for 350.			
<b>3588</b>	<b>Practicum in Actuarial Science</b>	<b>U</b>	<b>3</b>
Presentations by practicing actuaries on topics drawn from their fields of expertise; oral presentations by students on selected topics in actuarial science. Prereq: Completion of second writing course. Jr standing. Open only to actuarial science majors. Not open to students with credit for 588.			
<b>3589</b>	<b>Introduction to Financial Mathematics</b>	<b>U</b>	<b>3</b>
Introduction to mathematics used in financial asset pricing, based on the binomial asset pricing model. Prepares students for further study of stochastic calculus in continuous time. Prereq: C- or better in 3345 or credit for 345; and either C- or better in 4530, 5530H, or Stat 4201; or credit for 530, 531H, or Stat 420; or permission of department. Not open to students with credit for 589.			
<b>3607</b>	<b>Beginning Scientific Computing</b>	<b>U</b>	<b>3</b>
Introduction to mathematical theory of algorithms used to solve problems that typically arise in sciences, engineering, and finance. Prereq: Both a C- or better in 2255, 2415, or 5520H, or credit for 255, 415.xx, or 521H; and also a C- or better in 2568 or 5520H, or credit for 568, 571, or 520H.			
<b>3618</b>	<b>Theory of Interest</b>	<b>U</b>	<b>3</b>
Financial transactions involving interest: measurement of interest, force of interest, annuities-certain, introduction to financial derivatives. Prereq: A grade of C- or above in 1152, 1172, 1181H, 1534, 1544, 2162.xx, 2153, or 4181H, or credit for 153, 154, 162, 162H, or 191H; and enrollment in Math major, or Actuarial Science major or pre-major. Not open to students with credit for 618.			
<b>4181H</b>	<b>Honors Analysis I</b>	<b>U</b>	<b>5</b>
4181H - 4182H is an enriched honors sequence introducing students to mathematical underpinnings of calculus. Prereq: Permission of department.			
<b>4182H</b>	<b>Honors Analysis II</b>	<b>U</b>	<b>5</b>
4181H - 4182H is an enriched honors sequence introducing students to mathematical underpinnings of calculus. Prereq: A grade of B- or above in 4181H, or permission of department. Not open to students with credit for 264H.			
<b>4193</b>	<b>Individual Studies in Mathematics</b>	<b>U</b>	<b>1 - 3</b>
Individual studies. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			

<b>4194</b>	<b>Group Studies in Mathematics</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of able undergraduate students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4350</b>	<b>Quantitative Neuroscience</b>	<b>U</b>	<b>3</b>
Introduction to mathematical modeling and computational analysis of neuronal systems, Hodgkin-Huxley model, dynamical systems methods, neuronal networks, models for neurological disease. Prereq: 1152 (152) or 1157, or permission of instructor.			
<b>4407</b>	<b>Geometry for Teaching</b>	<b>U</b>	<b>2</b>
Algebra connections between school mathematics and undergraduate mathematics, focusing on the algebra in the Common Core State Standards for Mathematics. Prereq: Enrollment in the M.Ed. program for secondary mathematics. Prereq or concur: 4507; or permission of instructor.			
<b>4420</b>	<b>Capstone Course for Integrated Major in Mathematics and English</b>	<b>U</b>	<b>3</b>
Students combine the Mathematics and English knowledge and skills they have acquired in the integrated major through a capstone experience. Prereq: Sr standing in Integrated Major in Mathematics and English (IMME) Program, or permission of instructor. Not open to students with credit for English 4420. Cross-listed in English.			
<b>4480</b>	<b>Algebra for Teaching</b>	<b>U</b>	<b>2</b>
Algebra connections between school mathematics and undergraduate mathematics, focusing on the algebra in the Common Core State Standards for Mathematics. Prereq: Enrollment in the M.Ed. program for secondary mathematics. Prereq or concur: 4580; or permission of instructor.			
<b>4504</b>	<b>History of Mathematics</b>	<b>U</b>	<b>3</b>
Development of mathematics from primitive origins to present forms. Topics include development of arithmetic, algebra, geometry, trigonometry, and calculus. Prereq: A grade of C- or above in 2568, 4507, or 5520H, or credit for 568, 571, 507, 580, or 520H, and enrollment in Math major or Grad standing in EduTL; or permission of department. Not open to students with credit for 504.			
<b>4507</b>	<b>Geometry</b>	<b>U</b>	<b>3</b>
Topics in Euclidean, spherical, and hyperbolic geometries. Prereq: A grade of C- or above in 3345, and in 2568 or 5520H; or credit for 345, and credit for 568, 571, or 520H. Not open to students with credit for 507.			
<b>4512</b>	<b>Partial Differential Equations for Science and Engineering</b>	<b>U</b>	<b>3</b>
Second order ordinary differential equations via Laplace transforms and series solutions; Fourier series; three archetypical partial differential equations; boundary value problems; Sturm-Liouville theory. Intended for Engineering students. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, 2182H, or 4182H, or credit for 254.xx, 263.xx, 263.01H, or 264H. Not open to students with credit for 4557 (557) or 512.			
<b>4530</b>	<b>Probability</b>	<b>U</b>	<b>3</b>
Combinatorial probability, random variables, independence, expectation, variance. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, 2177, 2182H, or 4182H, or credit for 254.xx, 263.xx, 263.01H, or 264H. Not open to students with credit for 5530H (531H), 530, or Stat 4201 (420).			
<b>4545</b>	<b>Analysis Overview</b>	<b>U</b>	<b>4</b>
Topics in calculus and analysis. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, 2182H, or 4182H, or credit for 254, 263.xx, 263.01H, 264H, or equiv; and a grade of C- or above in 2568 or 5520H, or equiv; and Grad standing in Statistics or Biostatistics; and permission of department (Statistics or Biostatistics).			
<b>4547</b>	<b>Introductory Analysis I</b>	<b>U</b>	<b>3</b>
4547 - 4548 involves advanced calculus: sequences, limits, continuity, differentiation, Riemann integral, sequences and series of functions, Taylor series, improper integrals. Prereq: C- or better in 3345; or credit for 345. Not open to students with credit for 548.			
<b>4548</b>	<b>Introductory Analysis II</b>	<b>U</b>	<b>3</b>
Continuation of Math 4547. Advanced calculus: sequences, limits, continuity, differentiation, Riemann integral, sequences and series of functions, Taylor series, improper integrals. Prereq: C- or better in 4547, or credit for 548. Not open to students with credit for 549.			
<b>4551</b>	<b>Vector Analysis</b>	<b>U</b>	<b>3</b>
Vector operations; Jacobian and change of variables; divergence, gradient, and curl; Green's, Stokes', and divergence theorems; applications. Prereq: C- or better in 2153, 2162.xx, 2173, or 2182H; or credit for 254.xx, 263.xx, or 263.01H. Not open to students with credit for 4182H (264H), 513, or 551.			
<b>4552</b>	<b>Complex Analysis</b>	<b>U</b>	<b>3</b>
Introduction to analytic functions of a complex variable, integral theorems, power series, residues, conformal mapping. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, 2182H, or 4182H, or credit for 254.xx, 263.xx, 263.01H, or 264H. Not open to students with credit for 5522H (522H), 514, or 552.			

<b>4556</b>	<b>Dynamical Systems</b>	<b>U</b>	<b>3</b>
Systems of linear, first-order differential equations; existence and uniqueness theorems; numerical methods; qualitative theory; and physical applications. Prereq: A grade of C- or above in 2153, 2162.xx, 2173, 2182H, or 4182H, or credit for 254.xx, 263.xx, 263.01H, or 264H. Not open to students with credit for 556.			
<b>4557</b>	<b>Partial Differential Equations</b>	<b>U</b>	<b>3</b>
First and second-order PDE's; existence and uniqueness, initial and boundary value problems, Fourier series; Green's functions; wave, heat and Laplace equations; nonlinear PDE's; applications. Prereq: C- or better in 2255, 2415, 4556, or 5520H; or credit for 255, 415.xx, or 521H. Intended for Math majors. Not open to students with credit for 4512 (512), or 557.			
<b>4568</b>	<b>Linear Algebra for Engineering Graduate Students</b>	<b>U</b>	<b>3</b>
Systems of linear equations, vector spaces, bases and dimension, linear maps and matrices, eigenvalues and eigenvectors, applications. Prereq: A grade of C- or above in 1172, 2153, 2162.xx, 2182H, or 4182H, or credit for 254, 263.xx, 263.01H, or 264H, or equiv; and Grad standing. Not open to students with credit for 2568 (568), 5101 (601), 5520H (520H), or 572.			
<b>4570</b>	<b>Applied Algebraic Topology</b>	<b>U</b>	<b>3</b>
This course will serve as an introduction to algebraic topology, with a view toward persistent homology of point clouds for applications to data analysis. Homology of simplicial complexes over a field with a focus on building up intuition about homology moving to a specialized notion of persistent homology of persistence modules. Real-world applications to data analysis will be provided. Prereq: A grade of C- or above in 2568 and 3345.			
<b>4573</b>	<b>Elementary Number Theory</b>	<b>U</b>	<b>3</b>
Prime numbers, modular arithmetic, Diophantine equations, combinatorial analysis; introduction to concepts of abstract algebra. Prereq: A grade of C- or above in 3345 or 4181H, or credit for 264H or 345. Not open to students with credit for 5576H or 573.			
<b>4575</b>	<b>Combinatorial Mathematics</b>	<b>U</b>	<b>3</b>
Classic puzzles of recreational mathematics; matching theory and graph theory; enumeration techniques; combinatorial analysis. Prereq: C- or better in 2568 or 5520H; or credit for 568, 571, or 520H. Not open to students with credit for 5529H or 575.			
<b>4578</b>	<b>Discrete Mathematical Models</b>	<b>U</b>	<b>4</b>
Homogeneous and non-homogeneous difference equations of one or several variables, Markov chains, graph theory, network flows. Prereq: Both a C- or better in 2568 or 5520H; and also a C- or better in 4530, 5530H or Stat 4201; or both credit for 568, 571, or 520H; and also credit for 530, 531H, or Stat 420. Not open to students with credit for 578.			
<b>4580</b>	<b>Abstract Algebra I</b>	<b>U</b>	<b>3</b>
Topics in number theory, group theory, vector spaces and linear transformation, field theory, and field extensions. Prereq: A grade of C- or above in 3345, or credit for 345; and a grade of C- or above in 2568 or 5520H, or credit for 568, 571, or 520H. Not open to students with credit for 581 or 591H.			
<b>4581</b>	<b>Abstract Algebra II</b>	<b>U</b>	<b>3</b>
Continuation of Math 4580: topics in number theory, group theory, vector spaces and linear transformations, field theory, and field extensions. Prereq: A grade of C- or above in 4580, or credit for 5590H or 581. Not open to students with credit for 582 or 592H.			
<b>4990</b>	<b>Undergraduate Seminar in Mathematical Biology Research</b>	<b>U</b>	<b>1</b>
Seminar on research in mathematical biology and its applications, with an emphasis on evolutionary biology, ecology, neuroscience, and cell biology. Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U. Cross-listed in EEOB 4990.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 3</b>
Opportunity for undergraduate students to do mathematical research. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research</b>	<b>U</b>	<b>1 - 3</b>
Opportunity for honors undergraduate students to do mathematical research. Prereq: Honors standing and permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis</b>	<b>U</b>	<b>1 - 3</b>
Opportunity for undergraduate students to write a thesis. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Thesis</b>	<b>U</b>	<b>1 - 3</b>
Opportunity for honors undergraduate students to write a thesis. Prereq: Honors standing and permission of department. Not open to students with credit for 783H. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			

## 306 Mathematics

<b>5001</b>	<b>Introduction to Set Theory</b>	<b>U G</b>	<b>3</b>
Axioms of set theory, transfinite induction and recursion, cardinal numbers, cardinal arithmetic, ordinal numbers, ordinal arithmetic, Axiom of Choice, equivalent principles, closed unbounded and stationary sets, infinitary combinatorics. Prereq: 4547 (547), 4580 (580), Grad standing or permission of department. Not open to students with credit for 647			
<b>5051</b>	<b>Introduction to Mathematical Logic</b>	<b>U G</b>	<b>3</b>
Syntax and semantics of sentential logic, syntax and semantics of first-order logic, compactness of first-order logic, Goedel's completeness theorem, theories and models of theories, Goedel's incompleteness theorems; computability. Prereq: 4547 (547), 4580 (580), Grad standing, or permission of department. Not open to students with credit for 648 or 649.			
<b>5101</b>	<b>Linear Mathematics in Finite Dimensions</b>	<b>U G</b>	<b>3</b>
Vector spaces; linear transformations; inner product spaces; eigenvalues and eigenvectors; Hermitian, unitary and normal matrices; quadratic forms; constraints; Rayleigh quotients; singular value decomposition; pseudo-inverse. Prereq: 2568 (568), 571, or grad standing. Not open to students with credit for 601.			
<b>5102</b>	<b>Linear Mathematics in Infinite Dimensions</b>	<b>U G</b>	<b>3</b>
Sturm-Liouville systems, Hilbert spaces, Fourier and wavelet theory, Green's functions, Helmholtz's equation, cylinder and spherical harmonic solutions, interior and exterior boundary value problems, method of steepest descent and stationary phase. Prereq: 5101 (602). Not open to students with credit for 603.02.			
<b>5111</b>	<b>Algebra I</b>	<b>U G</b>	<b>5</b>
Groups and homomorphisms, group actions and Sylow's theorems, direct and semidirect products, rings and homomorphisms, factorizations in rings, polynomial rings. Prereq: Grad standing, or permission of department. Not open to students with credit for 670.			
<b>5112</b>	<b>Algebra II</b>	<b>U G</b>	<b>5</b>
Modules and vector spaces, modules over a principal ideal domain, applications to linear algebra, field theory, Galois theory. Prereq: 5111 (671) or 591H. Not open to students with credit for 672.			
<b>5152</b>	<b>Introduction to Number Theory with Applications</b>	<b>U G</b>	<b>3</b>
Divisibility, fundamental theorem of arithmetic, Fermat's theorem, congruences, Euler's formula, prime numbers, Euler's phi-function, counting primes, powers and roots mod m, quadratic reciprocity theorem, Diophantine approximation, Pell's theorem. Prereq: Both 5101 (602) and 4581 (582); or Grad standing. Not open to students with credit for 683.			
<b>5168</b>	<b>Introduction to the Finite Element Method</b>	<b>U G</b>	<b>3</b>
Basic concepts, formulation, and application of finite element techniques for numerical solution of problems of engineering and scientific interest. Prereq: 2568 (568) or CivilEn 2060 (406), and CSE 1221. Not open to students with credit for both CivilEn 768 and MechEng 7068. Cross-listed in MechEng and CivilEn.			
<b>5194</b>	<b>Group Studies in Mathematics</b>	<b>U G</b>	<b>1 - 9</b>
Designed to give groups of advanced undergraduate and beginning graduate students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of department. Repeatable.			
<b>5194H</b>	<b>Honors Group Studies in Mathematics</b>	<b>U G</b>	<b>1 - 3</b>
Gives groups of honors undergraduate students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of department. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>5201</b>	<b>Introduction to Real Analysis I</b>	<b>U G</b>	<b>5</b>
Basic metric topology, sequences and series, continuous functions, differentiable functions of one variable, Riemann integration, uniform convergence, Fourier series. Prereq: Grad standing, or permission of department. Not open to students with credit for 651.			
<b>5202</b>	<b>Introduction to Real Analysis II</b>	<b>U G</b>	<b>5</b>
Continuation of Fourier series, differentiable functions of several variables, implicit function theorem and inverse function theorem, introduction to Lebesgue measure and Lebesgue integration, introduction to Hilbert spaces. Prereq: 5201 (652). Not open to students with credit for 653.			
<b>5221</b>	<b>Introduction to Complex Analysis</b>	<b>U G</b>	<b>3</b>
Calculus of functions of a complex variable, series expansion and singularities of complex analytic functions, Cauchy's integral theorem, maximum principle, harmonic functions, differentials and residue theory, Weierstrass theorem. Prereq: 4547 (548). Not open to students with credit for 5251 (654).			
<b>5401</b>	<b>Applied Differential Equations I</b>	<b>U G</b>	<b>3</b>
Existence and uniqueness, linear ODE systems, 2x2, phase plane analysis, conservative and reversible systems, bifurcation analysis, limit cycles, perturbation theory. Prereq: 2255 (255) and 2568 (568 or 572). Not open to students with credit for 615.			
<b>5402</b>	<b>Applied Differential Equations II</b>	<b>U G</b>	<b>3</b>
Steady state, heat equation, wave equation, PDEs in two dimensions, the Dirichlet problem, nonlinear evolution equations, wave equations by method of characteristic curve. Prereq: 5401 (616). Not open to students with credit for 617.			

<b>5421</b>	<b>Mathematics of Infectious Disease Dynamics</b>	<b>U G</b>	<b>3</b>
Provides an introduction to mathematical modeling of infectious diseases, including techniques for building and analyzing disease models, and discussions of calibration and comparison of models with data. This course is intended for graduate students in public health or other related disciplines and for upper level undergraduate and graduate mathematics students. Prereq: 1152, 1172, or 153; or permission of instructor. Cross-listed in PubHEpi.			
<b>5451</b>	<b>Calculus of Variations and Tensor Calculus</b>	<b>U G</b>	<b>3</b>
Euler-Lagrange equations, Hamilton's Principle, Lagrangian mechanics, Hamiltonian dynamics, Hamilton-Jacobi integration theory of dynamical systems, direct methods, tensor calculus, curvature and geometry of continuum mechanics. Prereq: 2415.xx (415) and 2568 (568 or 572). Not open to students with credit for 701.			
<b>5520H</b>	<b>Honors Linear Algebra and Differential Equations</b>	<b>U G</b>	<b>5</b>
Linear transformations and matrices, spectral theorem, ordinary differential equations, existence and uniqueness theorems, phase space, stability, oscillations. Prereq: A grade of C or above in 4182H, or in both 2182H and 3345; or credit for 264H, or in both 263H and 345; or permission of department. Not open to students with credit for 520H and 521H.			
<b>5522H</b>	<b>Honors Complex Analysis</b>	<b>U G</b>	<b>5</b>
Theoretical treatment of complex analysis. Prereq: A grade of C or above in 5520H, or credit for 521H, or permission of department. Not open to students with credit for 4552, 522H, 514, or 552			
<b>5529H</b>	<b>Honors Combinatorics</b>	<b>U G</b>	<b>5</b>
Combinatorial mathematics and its connections with geometry, algebra, analysis, and probability. Prereq: A grade of C or above in 4182H, or in both 2182H and 3345; or credit for 264H, or for both 263H and 345; or permission of department. Not open to students with credit for 594H taken in Au10.			
<b>5530H</b>	<b>Honors Probability</b>	<b>U G</b>	<b>5</b>
Theoretical treatment of probability, with applications within and outside mathematics. Prereq: A grade of C or above in 5529H, or permission of department. Not open to students with credit for 531H or 594H in Au08 or Au07.			
<b>5540H</b>	<b>Honors Differential Geometry</b>	<b>U G</b>	<b>5</b>
Geometry of curves and surfaces in 3-dimensional space, curvature, geodesics, Gauss-Bonnet Theorem, Riemannian metrics. Prereq: A grade of C or above in 5520H, or in both 2182H and 2568; or credit for 520H, or in both 263.01H and 568; or permission of department. Not open to students with credit for 541H.			
<b>5576H</b>	<b>Honors Number Theory</b>	<b>U G</b>	<b>5</b>
Elementary analytic and algebraic number theory, tracing its unifying role in the development of mathematics through history. *Au Sem (odd years). Prereq: A grade of C or above in 4182H, or in both 2182H and 3345; or credit for 264H, or for both 263H and 345; or permission of department. Not open to students with credit for 577H.			
<b>5590H</b>	<b>Honors Abstract Algebra I</b>	<b>U G</b>	<b>5</b>
5590H - 5591H includes elementary number theory, group theory, ring theory, abstract linear algebra, field theory, and Galois theory. Prereq: A grade of C or above in 5520H or in 520H, or permission of department. Not open to students with credit for 591H.			
<b>5591H</b>	<b>Honors Abstract Algebra II</b>	<b>U G</b>	<b>5</b>
Continuation of 5590H: elementary number theory, group theory, ring theory, abstract linear algebra, field theory, and Galois theory. Prereq: A grade of C or above in 5590H or in 591H, or permission of department. Not open to students with credit for 592H.			
<b>5601</b>	<b>Essentials of Numerical Methods</b>	<b>U G</b>	<b>3</b>
Systems of linear equations, linear least squares, eigenvalue problems, nonlinear equations and optimization, interpolation, numerical integration and differentiation, numerical solution for ODEs, IVPs and BVPs. Prereq: 4556 (556) and either 2568 (568) or 572. Not open to students with credit for 607.			
<b>5602</b>	<b>Computational Partial Differential Equations</b>	<b>U G</b>	<b>3</b>
Parabolic PDEs: method of lines, stability and convergence; hyperbolic PDEs: shock capturing, flux limiters; elliptic PDEs: direct solvers and iterative methods. Prereq: Under semesters 5601 and either 4512 or 4557. Under quarters either 512 or 557; and 556; and either 568 or 572. Not open to students with credit for 606.			
<b>5603</b>	<b>Numerical Linear Algebra</b>	<b>U G</b>	<b>3</b>
Fundamentals of numerical linear algebra; solving square systems; QR factorization and least squares; calculation of eigenvalues; iterative methods for linear systems; iterative methods for eigenvalue problems. Prereq: Under semesters 2568 and one of 3607, 5601 or 5602. Under quarters either 568 or 571 and either 606 or 607.			
<b>5630</b>	<b>Life Contingencies I</b>	<b>U G</b>	<b>3</b>
Introduction to the mathematical theory of contingencies. Includes material from examinations by the Society of Actuaries and the Casualty Actuarial Society. Prereq: A grade of C- or above in 3618; and a grade of C- or above in 4530, 5530H, or Stat 4201; and enrollment in Actuarial Science major or the MMS program in Financial Math; or permission of department.			

**5631 Life Contingencies II U G 3**

Continuation of 5630: Mathematical Theory of Contingencies. Includes material from examinations by the Society of Actuaries and the Casualty Actuarial Society.  
Prereq: A grade of C- or above in 5630 (631). Open only to Actuarial Science majors, and to MMS students specializing in Financial Math.

**5632 Financial Economics for Actuaries U G 3**

Introduction to the evaluation of options, futures, and other derivatives, interest models and risk management techniques. Includes material from examinations by the Society of Actuaries and the Casualty Actuarial Society.  
Prereq: A grade of C- or above in 3618; and a grade of C- or above in 4530, 5530H, or Stat 4201; and enrollment in Math major or Actuarial Science major or Actuarial Science Pre-major, or Grad standing; or permission of department.

**5633 Loss Models I U G 3**

Introduction to the construction and evaluation of actuarial models, with topics covered by examinations of the Society of Actuaries and the Casualty Actuarial Society.  
Prereq: A C- or above in Stat 4202; and a C- or above in 4530, 5530H, or Stat 4201. Open only to actuarial science majors, and to MMS students specializing in Financial Math.

**5634 Loss Models II U G 3**

Continuation of 5633: introduction to the construction and evaluation of actuarial models, with topics covered by examinations of the Society of Actuaries and the Casualty Actuarial Society.  
Prereq: C- or better in 5633. Open only to actuarial science majors, and to MMS students specializing in Financial Math.

**5651 Mathematical Modeling of Biological Processes U G 3**

Enzyme dynamics, predator-prey and competition model, spread of diseases, plant growth, cell cycle and cell differentiation, reaction-diffusion with advection, cancer models and cancer therapy, wound healing.  
Prereq: Grad standing; or either 4512 (512) or 557, and 4556 (556), and either 2568 (568) or 572. Not open to students with credit for 865.

**5660 Integrated Molecular and Cellular Biology for Non-Biologists U G 5**

Overview of molecular and cellular biology of single cells, tissues, organisms and their interactions, including genetics and biochemistry of single cells.  
Prereq: Bio 1101 (101) or permission of instructor. Not open to students with credit for any one of MolGen 5660 (660), 4500 (500), 4606 (606), 605, or 661. Cross-listed in MolGen 5660.

**5702 Curves and Surfaces in Euclidean Three Space U G 3**

Parametrized curves, curvature of curves; Frenet frames, curves with prescribed curvatures, curves on hypersurfaces; principal, Gaussian, and mean curvatures; surfaces in  $R^3$ , triangulation and classification of surfaces, Gauss-Bonnet theorem.  
Prereq: Grad standing or 2153.01 (254) and either 2568 (568) or 572. Not open to students with credit for 642.

**5756 Mathematical Methods in Relativity Theory I U G 3**

Special relativity as moving frames; tensors, exterior algebra and exterior calculus; differentiable manifolds and space time structures; parallel transport, torsion and curvatures, metric compatibility; structure equations of differential geometry.  
Prereq: 2153.xx (254) and one of 2568 (568) or 5101 (601) or 572. Not open to students with credit for 665.

**5757 Mathematical Methods in Relativity Theory II U G 3**

Gravitation via geometry; stress energy tensor, fluid dynamics; energy momentum conservation; Einstein's field equations, geodesic world lines via Hamilton-Jacobi theory; Schwarzschild spacetime; gauge invariant perturbation theory.  
Prereq: 5756 (665). Not open to students with credit for 666.

**5801 General Topology and Knot Theory U G 3**

Topological spaces; continuous maps and metric spaces; connectedness, compactness, countability axioms; metrization, compactification, and convergence; combinatorial, geometric, and algebraic techniques in knot theory; invariants of knots.  
Prereq: Grad standing; or 4547 (547) and either 2568 (568) or 572. Not open to students with credit for 640.

**6001 Advanced Mathematical Logic I: Proof Theory G 3**

Logical calculi; cut elimination and Herbrand's theorem; ordinal analysis; ordinal analysis of theories of sets; constructive and intuitionistic logics; realizability; proof mining.  
Prereq: 5051 (649), or permission of department. Not open to students with credit for 747.

**6002 Advanced Mathematical Logic II: Model Theory G 3**

Construction of models, compactness, Lowenheim-Skolem theorems, unions of elementary chains, omitting types; categoricity; saturation; model completeness, quantifier elimination; ultraproducts; definability.  
Prereq: 5051 (649) or permission of department. Not open to students with credit for 747.

**6003 Advanced Mathematical Logic III: Set Theory G 3**

Axioms of set theory; ordinal and cardinal numbers; transitive models of ZFC; the constructible universe  $L$  and HOD; forcing; large cardinals; descriptive set theory.  
Prereq: 5051 (649) or permission of department. Not open to students with credit for 747.

**6004 Advanced Mathematical Logic IV: Computability Theory G 3**

Relative recursion; Turing reducibility, structure of Turing degrees; structure of the recursively enumerable degrees and priority arguments; recursion in higher types; generalized recursion; Borel and projective sets; determinacy.  
Prereq: 5051 (649) or permission of department. Not open to students with credit for 747.

**6111 Abstract Algebra I G 5**

Group theory; series and actions of groups; ring theory; modules; UFDs and PIDs; polynomial and Noetherian rings; linear and multilinear algebra.  
Prereq: 5112, or Grad standing.

**6112 Abstract Algebra II G 5**

Introduction to category theory; elementary homological algebra; field theory; finite Galois Theory; infinite Galois Theory; algebraic spaces.  
Prereq: 6111 (771). Not open to students with credit for 772.

**6151 Commutative Algebra G 3**

Prime and primary ideals; rings and modules of fractions; integral dependence; chain conditions; valuation and Dedekind domains; completions; Dimension Theory.  
Prereq: 6112 (772). Not open to students with credit for 978.

**6152 Non-Commutative Algebra G 3**

Semisimple modules and rings and the Wedderburn Structure Theorem; Jacobson Radical; central simple algebras and the Noether-Skolem Theorem; Brauer Group; primitive rings, Density Theorem.  
Prereq: 6112 (772). Not open to students with credit for 982.

**6191 Internship in Mathematical Sciences G 1 - 5**

Internship and practical experiences, designed primarily for Master level students in the mathematical sciences.  
Prereq: Permission of department. This course is graded S/U.

**6193 Individual Studies in Mathematics G 1 - 9**

Individual studies.  
Prereq: Permission of department. Repeatable. This course is graded S/U.

**6194 Group Studies in Mathematics G 1 - 9**

Designed to give groups of PhD students an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of department. Repeatable.

**6211 Real Analysis I G 5**

Measures; integration; introduction to normed linear spaces; introduction to  $L^p$  spaces; Fourier analysis; signed measures and differentiation.  
Prereq: 5202 (653). Not open to students with credit for 750.

**6212 Real Analysis II G 5**

Elements of functional analysis; properties and relations of  $L^p$  spaces and Fourier analysis; elements of the theory of distributions; selected applications.  
Prereq: 6211 (751). Not open to students with credit for 752.

**6221 Complex Analysis I G 3**

Basic Cauchy theory; harmonic functions; Riemann mapping theorem, conformal maps; analytic continuation; applications of residue calculus; counting theorems for entire and meromorphic functions.  
Prereq: 5202 (653). Not open to students with credit for 753.

**6222 Complex Analysis II G 3**

Approximation theorems; applications to Fourier analysis and number theory; Jensen and Weierstrass Theorems; Basic SCV: Cauchy-Riemann equations in several variables; pseudoconvexity and extension phenomena; d-bar methods.  
Prereq: 6221.

**6251 Theory of Probability I G 4**

Review of measures and integration; independence for events and for random variables; covariance and correlation for random variables; weak and strong laws of large numbers; Borel-Cantelli lemmas; Central Limit Theorems.  
Prereq: 5202 (653). Not open to students with credit for 722.

**6252 Theory of Probability II G 4**

Central limit theorems; Poisson processes; random walks, Markov chains; martingales; Brownian motion; stochastic processes.  
Prereq: 6251 (723). Not open to students with credit for 724.

**6411 Ordinary Differential Equations I G 3**

Existence, uniqueness and smooth dependence; linear systems; periodic and homoclinic orbits; stability, hyperbolicity; stable, unstable, and center invariant manifolds; bifurcations of equilibria and periodic orbits; chaos, strange attractors.  
Prereq: Both 5202 and either 2568 (568) or 572. Not open to students with credit for Math 715.

**6451 Partial Differential Equations I G 3**

Second order linear equations; first order equations: conservation laws, Hamilton-Jacobi equations; Fourier and Laplace transform method, Hopf-Cole and Legendre transform, singular perturbation method; Cauchy-Kovalevskaya Theorem.  
Prereq: 6411 (715). Not open to students with credit for 717.

## 308 Mathematics

<b>6501</b>	<b>Combinatorics and Graph Theory I</b>	<b>G</b>	<b>3</b>
Enumerative combinatorics: factorials, binomials and multinomials, Stirling approximation, recursion and generating functions, Catalan numbers. Graph theory: Kuratowski's theorem, graph coloring, Ramsey theory, matrix-tree theorem, expander graphs. Prereq: Grad standing in Math; or 4581 and 2568; or permission of instructor.			
<b>6502</b>	<b>Combinatorics and Graph Theory II</b>	<b>G</b>	<b>3</b>
Ramsey theory, extremal graph theory. First moment method, second moment method, alterations. Concentration inequalities. Lovasz local lemma. Martingale methods. Correlation inequalities. Phase transitions. Random trees, random planar maps. Prereq: 6501 or permission of instructor.			
<b>6601</b>	<b>Numerical Methods in Scientific Computing I</b>	<b>G</b>	<b>4</b>
Numerical linear algebra: matrix operations, direct and iterative methods for systems of linear equations, eigenvalue problems; Nonlinear equations and systems; Numerical Integration. Prereq: 5603, and permission of the Graduate School; or Grad standing.			
<b>6602</b>	<b>Numerical Methods in Scientific Computing II</b>	<b>G</b>	<b>4</b>
Approximation theory: interpolation, projection, integration; Initial value problems: one- and multi-step methods, Runge-Kutta methods, stability analysis; PDEs: advection equation, diffusion equation, stability analysis. Prereq: 6601.			
<b>6701</b>	<b>Differentiable Manifolds</b>	<b>G</b>	<b>3</b>
Differentiable manifolds; vector bundles, existence theorem for ODE, flows, sprays; vector fields, differential operators, Lie and exterior derivatives; Poincare Lemma, Darboux's Theorem; Frobenius's Theorem, Lie groups; de Rham cohomology. Prereq: Grad standing or all of 5201 (652), and either 2568 (568) or 572, and 2153.01 (254). Not open to students with credit for 765.			
<b>6702</b>	<b>Differential Geometry</b>	<b>G</b>	<b>3</b>
Riemannian manifolds, distance, volume; covariant derivatives, Levi-Civita connection; geodesics, curvatures: sectional, Ricci, scalar; Jacobi fields, conjugate points; Rauch comparison, Hopf-Rinow, Hadamard, Preissman's and Berger's Sphere Theorems. Prereq: 6701 (765). Not open to students with credit for 766.			
<b>6801</b>	<b>Algebraic Topology I</b>	<b>G</b>	<b>3</b>
Simplicial and CW- complexes, operations on spaces; homotopy and homeomorphism type; fundamental group, Seifert Van-Kampen Theorem; classification of covering spaces; singular and simplicial homology, chain maps, homotopy invariance, functoriality. Prereq: Grad standing or both 5801 (640) and 5111 (670). Not open to students with credit for 756.			
<b>6802</b>	<b>Algebraic Topology II</b>	<b>G</b>	<b>3</b>
Homology of pairs, excision, axioms; Mayer-Vietoris, cellular homology; cohomology groups, Ext and Tor functors, universal coefficients; Kuneth Theorem; Orientation on manifolds; fundamental class; Poincare, Alexander, and Lefschetz duality. Prereq: 6801 (756). Not open to students with credit for 758.			
<b>6998</b>	<b>Graduate Research</b>	<b>G</b>	<b>1 - 16</b>
Graduate research, primarily for Masters and beginning PhD students participating in research projects other than their thesis work. Prereq: Permission of department. Repeatable. This course is graded S/U.			
<b>6999</b>	<b>Graduate Thesis Research</b>	<b>G</b>	<b>1 - 16</b>
Graduate research, primarily for students working on their master theses. Prereq: Permission of department. Repeatable. This course is graded S/U.			
<b>7121.01</b>	<b>Algebraic Number Theory</b>	<b>G</b>	<b>3</b>
Algebraic integers, Dedekind domains, ideal class group; Galois theory of prime ideals, Frobenius automorphisms; geometry of numbers; cyclotomic fields, class field theory over $\mathbb{Q}$ ; quadratic fields; local fields; ideles and adeles. Prereq: 6112. Not open to students with credit for 7121.02.			
<b>7121.02</b>	<b>Algebraic Number Theory</b>	<b>G</b>	<b>3</b>
Algebraic integers, Dedekind domains, ideal class group; Galois theory of prime ideals, Frobenius automorphisms; geometry of numbers; cyclotomic fields, class field theory over $\mathbb{Q}$ ; quadratic fields; local fields; ideles and adeles. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7122.01</b>	<b>Analytic Number Theory</b>	<b>G</b>	<b>3</b>
Properties and examples of L-functions; primes in arithmetic progression; Riemann-Weil formula; non-vanishing theorem; analysis of L-functions on the critical line; principle of large sieve; Brauer-Siegel theorem, Ikehara-Tauberian theorem. Prereq: 7121.01 and 6222. Not open to students with credit for 7122.02.			
<b>7122.02</b>	<b>Analytic Number Theory</b>	<b>G</b>	<b>3</b>
Properties and examples of L-functions; primes in arithmetic progression; Riemann-Weil formula; non-vanishing theorem; analysis of L-functions on the critical line; principle of large sieve; Brauer-Siegel theorem, Ikehara-Tauberian theorem. This course section is open only to mathematics postcandidacy students. Prereq: Permission of instructor. This course is graded S/U.			
<b>7141.01</b>	<b>Algebraic Geometry I</b>	<b>G</b>	<b>3</b>
Affine and quasi-projective varieties; morphisms and rational maps; nonsingular varieties; sheaves and schemes; first properties of schemes; separated and proper maps of schemes. Prereq: 6112 and 6151. Not open to students with credit for 7141.02.			

<b>7141.02</b>	<b>Algebraic Geometry I</b>	<b>G</b>	<b>3</b>
Affine and quasi-projective varieties; morphisms and rational maps; nonsingular varieties; sheaves and schemes; first properties of schemes; separated and proper maps of schemes. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7142.01</b>	<b>Algebraic Geometry II</b>	<b>G</b>	<b>3</b>
Sheaves of Modules, quasi-coherent and coherent sheaves; divisors, projective morphism; sheaf of differentials; derived functors and sheaf cohomology; coherent sheaf cohomology of schemes; Serre's Duality, higher direct images, flat and smooth maps. Prereq: 7141.01. Not open to students with credit for 7142.02.			
<b>7142.02</b>	<b>Algebraic Geometry II</b>	<b>G</b>	<b>3</b>
Sheaves of Modules, quasi-coherent and coherent sheaves; divisors, projective morphism; sheaf of differentials; derived functors and sheaf cohomology; coherent sheaf cohomology of schemes; Serre's Duality, higher direct images, flat and smooth maps. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7161.01</b>	<b>Lie Algebras</b>	<b>G</b>	<b>3</b>
Nilpotent and solvable Lie algebras; structure and classification of simple Lie algebras; Levi-Malcev decomposition; root systems; Dynkin diagrams; introduction to representation of complex semi-simple Lie algebras; universal enveloping algebra. Prereq: 6111, or instructor permission.			
<b>7161.02</b>	<b>Lie Algebras</b>	<b>G</b>	<b>3</b>
Nilpotent and solvable Lie algebras; structure and classification of simple Lie algebras; Levi-Malcev decomposition; root systems; Dynkin diagrams; introduction to representation of complex semi-simple Lie algebras; universal enveloping algebra. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7162.01</b>	<b>Lie Groups and Representation Theory</b>	<b>G</b>	<b>3</b>
Basic group theory constructions; passage between a Lie group and its Lie algebra; homogeneous spaces; maximal tori; unitary trick and complete reducibility; classification of irreducible unitary representations; Cartan-Weyl theory. Prereq: 7161.01 and 6701. Not open to students with credit for 7162.02.			
<b>7162.02</b>	<b>Lie Groups and Representation Theory</b>	<b>G</b>	<b>3</b>
Basic group theory constructions; passage between a Lie group and its Lie algebra; homogeneous spaces; maximal tori; unitary trick and complete reducibility; classification of irreducible unitary representations; Cartan-Weyl theory. This course section is open only to mathematics postcandidacy students. Prereq: Permission of instructor. This course is graded S/U.			
<b>7193</b>	<b>Individual Studies in Mathematics</b>	<b>G</b>	<b>1 - 9</b>
Individual studies. Prereq: Permission of department. Repeatable. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Mathematics</b>	<b>G</b>	<b>1 - 9</b>
Designed to give groups of advanced PhD students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of department. Repeatable.			
<b>7211.01</b>	<b>Functional Analysis I</b>	<b>G</b>	<b>3</b>
Linear spaces and linear maps; Hahn-Banach theorem and its applications; normed linear spaces and their duals; Hilbert spaces and applications; weak and weak* topologies; Choquet theorems; bounded linear maps. Prereq: 6212. Not open to students with credit for 7211.02.			
<b>7211.02</b>	<b>Functional Analysis I</b>	<b>G</b>	<b>3</b>
Linear spaces and linear maps; Hahn-Banach theorem and its applications; normed linear spaces and their duals; Hilbert spaces and applications; weak and weak* topologies; Choquet theorems; bounded linear maps. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7212.01</b>	<b>Functional Analysis II</b>	<b>G</b>	<b>3</b>
Banach algebras, elementary spectral theory; Gelfand's theory of commutative Banach algebras; examples of families of operators; spectral theory of normal, unitary, self-adjoint operators; semigroups of operators; distributions; applications. Prereq: 7211.01. Not open to students with credit for 7212.02.			
<b>7212.02</b>	<b>Functional Analysis II</b>	<b>G</b>	<b>3</b>
Banach algebras, elementary spectral theory; Gelfand's theory of commutative Banach algebras; examples of families of operators; spectral theory of normal, unitary, self-adjoint operators; semigroups of operators; distributions; applications. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7221.01</b>	<b>Ergodic Theory I</b>	<b>G</b>	<b>3</b>
Measure preserving transformations; isomorphism, conjugacy, spectral isomorphism; measure preserving systems with discrete spectrum; hierarchy of mixing properties; invariant measures for continuous transformations; topological and symbolic dynamics. Prereq: 6211. Not open to students with credit for 7221.02.			
<b>7221.02</b>	<b>Ergodic Theory I</b>	<b>G</b>	<b>3</b>
Measure preserving transformations; isomorphism, conjugacy, spectral isomorphism; measure preserving systems with discrete spectrum; hierarchy of mixing properties; invariant measures for continuous transformations; topological and symbolic dynamics. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			

<b>7222.01</b>	<b>Ergodic Theory II</b>	<b>G</b>	<b>3</b>
Entropy; topological entropy; flows on homogeneous spaces; structure theory of measure preserving systems; applications to combinatorics and number theory. Prereq: 7221.01. Not open to students with credit for 7222.02.			
<b>7222.02</b>	<b>Ergodic Theory II</b>	<b>G</b>	<b>3</b>
Entropy; topological entropy; flows on homogeneous spaces; structure theory of measure preserving systems; applications to combinatorics and number theory. This course section is open only to mathematics postcandidacy students. Prereq: Permission of instructor. This course is graded S/U.			
<b>7412.01</b>	<b>Ordinary Differential Equations II</b>	<b>G</b>	<b>3</b>
Topological equivalence of nonlinear systems; normal forms of Poincare-Dulac-Birkhoff; classification of vector fields near critical points; local bifurcation theory; topological dynamics; limit sets; flows on the torus. Prereq: 6451. Not open to students with credit for 7412.02.			
<b>7412.02</b>	<b>Ordinary Differential Equations II</b>	<b>G</b>	<b>3</b>
Topological equivalence of nonlinear systems; normal forms of Poincare-Dulac-Birkhoff; classification of vector fields near critical points; local bifurcation theory; topological dynamics; limit sets; flows on the torus. Prereq: Post-candidacy standing in Math, and permission of instructor. This course is graded S/U.			
<b>7413</b>	<b>Ordinary Differential Equations III</b>	<b>G</b>	<b>3</b>
Structural stability; singularity theory of Thom and Arnol'd; versal deformations; global deformations at separatrix cycle; Anosov diffeomorphisms; Axiom A; symbolic dynamics. Prereq: 7412 (821). Not open to students with credit for 822.			
<b>7452.01</b>	<b>Partial Differential Equations II</b>	<b>G</b>	<b>3</b>
Sobolev spaces, Sobolev inequalities and embedding theorems; Lax-Milgram theorem, Fredholm alternatives, weak compactness; linear elliptic equations: existence, regularity, maximum principles; hyperbolic equations; first order hyperbolic systems. Prereq: 6451 and 6212. Not open to students with credit for 7452.02.			
<b>7452.02</b>	<b>Partial Differential Equations II</b>	<b>G</b>	<b>3</b>
Sobolev spaces, Sobolev inequalities and embedding theorems; Lax-Milgram theorem, Fredholm alternatives, weak compactness; linear elliptic equations: existence, regularity, maximum principles; hyperbolic equations; first order hyperbolic systems. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7453.01</b>	<b>Partial Differential Equations III</b>	<b>G</b>	<b>3</b>
Harnack inequalities, De Giorgi-Nash-Moser theory; calculus of variations; monotonicity and sub-super solution methods, Pohozaev identity; hyperbolic conservation laws; quasilinear elliptic and parabolic equations; Schauder theory; strong solutions. Prereq: 7452.01. Not open to students with credit for 7453.02.			
<b>7453.02</b>	<b>Partial Differential Equations III</b>	<b>G</b>	<b>3</b>
Harnack inequalities, De Giorgi-Nash-Moser theory; calculus of variations; monotonicity and sub-super solution methods, Pohozaev identity; hyperbolic conservation laws; quasilinear elliptic and parabolic equations; Schauder theory; strong solutions. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7611</b>	<b>Computational Partial Differential Equations I</b>	<b>G</b>	<b>3</b>
Numerical methods for boundary value problems (BVP); extension to separable elliptic PDEs, fast solvers; irregular domains, variable coefficients; iterative methods; diffusion equations; error analysis; variable coefficients in nonlinear problems. Prereq: 6602 (709). Not open to students with credit for 807.			
<b>7612</b>	<b>Computational Partial Differential Equations II</b>	<b>G</b>	<b>3</b>
Linear hyperbolic equations, finite difference methods; quasi-linear and non-linear equations with shock formation, Lax-Wendroff theorem; flux-limiters, WENO methods; multi-dimensional problems; transport equations; adaptive grids, grid generation. Prereq: 7611 (808). Not open to students with credit for 809.			
<b>7651.01</b>	<b>Applied Complex Variables and Asymptotics I</b>	<b>G</b>	<b>3</b>
Contour integration, conformal mapping; asymptotics of integrals; asymptotic properties of Laplace and Fourier transforms; Riemann-Hilbert problems, applications to singular integral equations; introduction to the theory of elliptic functions. Prereq: 5251 and 5201 and 6451. Not open to students with credit for 7651.02.			
<b>7651.02</b>	<b>Applied Complex Variables and Asymptotics I</b>	<b>G</b>	<b>3</b>
Contour integration, conformal mapping; asymptotics of integrals; asymptotic properties of Laplace and Fourier transforms; Riemann-Hilbert problems, applications to singular integral equations; introduction to the theory of elliptic functions. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7652.01</b>	<b>Applied Complex Variables and Asymptotics II</b>	<b>G</b>	<b>3</b>
Asymptotic expansions; Watson's and Borel-Ritt lemma, stationary phase, steepest descent methods; contractive mapping methods; WKB and boundary layer methods; analyzable functions, transseries; Borel transform; Borel summability of solutions. Prereq: 7651.01. Not open to students with credit for 7652.02.			

<b>7652.02</b>	<b>Applied Complex Variables and Asymptotics II</b>	<b>G</b>	<b>3</b>
Asymptotic expansions; Watson's and Borel-Ritt lemma, stationary phase, steepest descent methods; contractive mapping methods; WKB and boundary layer methods; analyzable functions, transseries; Borel transform; Borel summability of solutions. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7711.01</b>	<b>Riemannian Geometry</b>	<b>G</b>	<b>3</b>
Basic concepts of (pseudo) Riemannian geometry, such as curvature and Ricci tensors, Riemannian distance, geodesics, the Laplacian, and proofs of some fundamental results, including the Frobenius and Lie-subgroup theorems, the local structure of constant-curvature metrics, characterization of conformal flatness, the Hopf-Rinow, Myers, Lichnerowicz and Singer-Thorpe theorems. Prereq: 6702. Not open to students with credit for 7711.02.			
<b>7711.02</b>	<b>Riemannian Geometry</b>	<b>G</b>	<b>3</b>
Basic concepts of (pseudo) Riemannian geometry, such as curvature and Ricci tensors, Riemannian distance, geodesics, the Laplacian, and proofs of some fundamental results, including the Frobenius and Lie-subgroup theorems, the local structure of constant-curvature metrics, characterization of conformal flatness, the Hopf-Rinow, Myers, Lichnerowicz and Singer-Thorpe theorems. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7721.01</b>	<b>Kahler Geometry</b>	<b>G</b>	<b>3</b>
Basic concepts of Kahler geometry, such as the Kahler and Ricci forms, positivity/negativity in cohomology, Kahler-Einstein metrics, and proofs of some fundamental results, including the d-d-bar lemma, Calabi's uniqueness theorems, Matsushima's reductivity theorem for Kahler-Einstein manifolds, and Futaki's isomorphism theorem. Prereq: 6701 and 6221. Not open to students with credit for 7721.02.			
<b>7721.02</b>	<b>Kahler Geometry</b>	<b>G</b>	<b>3</b>
Basic concepts of Kahler geometry, such as the Kahler and Ricci forms, positivity/negativity in cohomology, Kahler-Einstein metrics, and proofs of some fundamental results, including the d-d-bar lemma, Calabi's uniqueness theorems, Matsushima's reductivity theorem for Kahler-Einstein manifolds, and Futaki's isomorphism theorem. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7811.01</b>	<b>Homotopy Theory</b>	<b>G</b>	<b>3</b>
Homotopy groups, Whitehead's theorem, CW approximation; homotopy excision, Hurewicz theorem; fibrations, mapping path and loop spaces; fibre bundles, sphere bundles over spheres; obstruction theory, relation to cohomology; Postnikov towers. Prereq: 6802. Not open to students with credit for 7811.02.			
<b>7811.02</b>	<b>Homotopy Theory</b>	<b>G</b>	<b>3</b>
Homotopy groups, Whitehead's theorem, CW approximation; homotopy excision, Hurewicz theorem; fibrations, mapping path and loop spaces; fibre bundles, sphere bundles over spheres; obstruction theory, relation to cohomology; Postnikov towers. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7851.01</b>	<b>Differential Topology I</b>	<b>G</b>	<b>3</b>
Whitney Immersion and Embedding Theorems, transverse functions, jet-bundles, Thom transversality; classification of vector bundles, collars, tubular neighborhoods, intersection theory; Morse functions and lemma; surgery, Smale cancellation. Prereq: 6701 and 6801. Not open to students with credit for 7851.02.			
<b>7851.02</b>	<b>Differential Topology I</b>	<b>G</b>	<b>3</b>
Whitney Immersion and Embedding Theorems, transverse functions, jet-bundles, Thom transversality; classification of vector bundles, collars, tubular neighborhoods, intersection theory; Morse functions and lemma; surgery, Smale cancellation. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7852.01</b>	<b>Differential Topology II</b>	<b>G</b>	<b>3</b>
DeRham and Cech cohomology; deRham Theorem; Grassmannians; Stiefel-Whitney, Euler, Chern, and Pontryagin classes; Gysin sequence, Thom isomorphism; characteristic numbers, multiplicative sequences, Hirzebruch signature theorem; Chern-Weil Theory. Prereq: 6702 and 6802 and 7851.01. Not open to students with credit for 7852.02.			
<b>7852.02</b>	<b>Differential Topology II</b>	<b>G</b>	<b>3</b>
DeRham and Cech cohomology; deRham Theorem; Grassmannians; Stiefel-Whitney, Euler, Chern, and Pontryagin classes; Gysin sequence, Thom isomorphism; characteristic numbers, multiplicative sequences, Hirzebruch signature theorem; Chern-Weil Theory. Prereq: Post-candidacy in Math, and permission of instructor. This course is graded S/U.			
<b>7998</b>	<b>Graduate Research</b>	<b>G</b>	<b>1 - 16</b>
Graduate Research, primarily for intermediate PhD students participating in research projects other than their thesis work. Prereq: Permission of the department. Repeatable. This course is graded S/U.			
<b>8000</b>	<b>Topics in Foundations of Mathematics</b>	<b>G</b>	<b>3</b>
Special topics in foundations of mathematics chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8110</b>	<b>Topics in Algebra</b>	<b>G</b>	<b>3</b>
Special topics in algebra chosen by the instructor. prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			

## 310 Mathematics

<b>8120</b>	<b>Topics in Number Theory</b>	<b>G</b>	<b>3</b>
Special topics in number theory chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8140</b>	<b>Topics in Algebraic Geometry</b>	<b>G</b>	<b>3</b>
Special topics in algebraic geometry chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8160</b>	<b>Topics in Representation Theory</b>	<b>G</b>	<b>3</b>
Special topics in representation theory chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8210</b>	<b>Topics in Real Analysis</b>	<b>G</b>	<b>3</b>
Special topics in real analysis chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8220</b>	<b>Topics in Complex Analysis</b>	<b>G</b>	<b>3</b>
Special topics in complex analysis chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8250</b>	<b>Topics in Probability Theory</b>	<b>G</b>	<b>3</b>
Special topics in probability theory chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8300</b>	<b>Topics in Financial Mathematics</b>	<b>G</b>	<b>3</b>
Special topics in financial mathematics chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8410</b>	<b>Topics in Ordinary Differential Equations</b>	<b>G</b>	<b>3</b>
Special topics in ordinary differential equations chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8420</b>	<b>Topics in Partial Differential Equations</b>	<b>G</b>	<b>3</b>
Special topics in partial differential equations chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8500</b>	<b>Topics in Combinatorics</b>	<b>G</b>	<b>3</b>
Special topics in combinatorics chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8610</b>	<b>Topics in Applied Mathematics</b>	<b>G</b>	<b>3</b>
Special topics in applied mathematics chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8650</b>	<b>Topics in Mathematical Biology</b>	<b>G</b>	<b>3</b>
Special topics in mathematical biology chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8710</b>	<b>Topics in Differential Geometry</b>	<b>G</b>	<b>3</b>
Special topics in differential geometry chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8750</b>	<b>Topics in Lie Theory</b>	<b>G</b>	<b>3</b>
Special topics in Lie theory chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8800</b>	<b>Topics in Topology</b>	<b>G</b>	<b>3</b>
Special topics in topology chosen by the instructor. Prereq: Permission of department. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8998</b>	<b>Graduate Research</b>	<b>G</b>	<b>1 - 16</b>
Graduate research, primarily for advanced PhD students participating in research projects other than their thesis work. Prereq: Permission of department. Repeatable to a maximum of 20 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 16</b>
Graduate research for students working on their PhD dissertation. Prereq: Permission of department. Repeatable. This course is graded S/U.			

## Meat Science

<b>1100</b>	<b>Exploring Animal and Meat Sciences</b>	<b>U</b>	<b>½</b>
Basic understanding of animal and meat sciences and opportunities for undergraduate professional development. Cross-listed in AnimSci.			
<b>2010</b>	<b>Bar-B-Que Science</b>	<b>U</b>	<b>2</b>
Investigating methods to prepare various meat products. Students will gain experience in matching proper cooking methods with different muscles to produce wholesome and palatable products. Students will be introduced to product sensory techniques.			
<b>3110</b>	<b>Introductory Meat Science</b>	<b>U</b>	<b>3</b>
Analysis of the principles of meat science as related to meat animal value factors, processing technology, and merchandising systems affecting the producer, processor, and consumer. Prereq: Biology 1101 or 1113. Not open to students with credit for AnimSci 3110. Cross-listed in AnimSci.			

<b>3191</b>	<b>Internship in Meat Science</b>	<b>U</b>	<b>2</b>
Supervised preplanned employment experience and/or on-site problem solving study program. Prereq: Permission of academic advisor. Prereq or concur: FAES 3191. This course is graded S/U. Cross-listed in AnimSci.			
<b>3210</b>	<b>Food Animal Processing</b>	<b>U</b>	<b>3</b>
Hands-on application of the procedures involved with food animal harvest, inspection, carcass fabrication and merchandising retail products. Prereq or concur: 3110 or AnimSci 3110. Not open to students with credit for AnimSci 355.02.			
<b>3310</b>	<b>Meat Animal and Carcass Evaluation</b>	<b>U</b>	<b>3</b>
Evaluating the factors that influence the value of meat animals and their resulting carcasses, wholesale and retail cuts in accordance with recognized grading standards; laboratory practice. Prereq: Not open to students with credit for AnimSci 305.			
<b>3488</b>	<b>Professional Development in Meat Science</b>	<b>U</b>	<b>1 - 2</b>
Participation in structured co-curricular programs leading to professional development. Prereq: CPHR 2.0 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>0 - 3</b>
Special assignments and advanced research; problems assigned after consultation with the instructor in charge. Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Special topics area group studies finally proposed for a specific semester by an animal science faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4510</b>	<b>Processed Meats</b>	<b>U</b>	<b>3</b>
Exploring fundamental changes in soft animal tissues resulting from comminution and application of non-meat ingredients and a variety of cooking methodologies to enhance palatability and value. Prereq or concur: 3110, AnimSci 3110, or FdScTe 2400. Not open to students with credit for AnimSci 555.02.			
<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>0 - 6</b>
Conducting and reporting research with distinction. Prereq: CPHR 3.0 overall, GPA 3.0 or above in major, and permission of project supervisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Research with Distinction</b>	<b>U</b>	<b>0 - 6</b>
Conducting and reporting honors research with distinction. Prereq: Honors standing, FAES 1100H, CPHR 3.4 or above, major GPA 3.4 or above, and permission of honors project supervisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>5510</b>	<b>Advanced Meat Science</b>	<b>U G</b>	<b>3</b>
Exploration of the antemortem and postmortem biochemical principles in skeletal muscle underlying protein functionality and resulting meat quality. Prereq: 3110 or AnimSci 3110. Not open to students with credit for AnimSci 605.			
<b>5810</b>	<b>Branded Meat Products</b>	<b>U G</b>	<b>4</b>
Integration of multiple factors influencing value-added product development including: raw material quality and procurement, processing, packaging, distribution, and complexity of market development and current consumer trends in niche marketing. Prereq: 3110 or AnimSci 3110, and completion of a second writing course. Not open to students with credit for AnimSci 5810 or 555.03. Cross-listed in AnimSci.			

## Mechanical Engineering

<b>2010</b>	<b>Statics</b>	<b>U</b>	<b>2</b>
Vector concepts of static equilibrium for isolated and connected bodies, centroids, inertia, truss, frame and machine analysis, and friction. Prereq: Engr 1181 or 1187 or 1281H, and Physics 1250 or 1260, and Math 1151 or 1161. Not open to students with credit for 2010H or 2040.			
<b>2010H</b>	<b>Statics</b>	<b>U</b>	<b>2</b>
Vector concepts of static equilibrium for isolated and connected bodies, centroids, inertia, truss, frame and machine analysis, friction and virtual work. Prereq: Honors standing, and Engr 1181 or 1187 or 1281H, and Math 1151 or 1161. Prereq or concur: Physics 1250 or 1260. Not open to students with credit for 2040.			
<b>2020</b>	<b>Introduction to Mechanics of Materials</b>	<b>U</b>	<b>3</b>
Stress and strain analysis of deformable structural components subjected to unidirectional and combined loads; pressure vessels; stress transformations (Mohr's Circle); beam deflections; column buckling. Prereq: 2010 or 2010H. Not open to students with credit for 2040.			
<b>2030</b>	<b>Dynamics</b>	<b>U</b>	<b>3</b>
Dynamics of particles and rigid bodies; linear and angular motion; work and energy; and single degree of freedom vibration analysis. Prereq: 2010 or 2010H or 2040.			



<b>2040</b>	<b>Statics and Introduction to Mechanics of Materials</b>	<b>U</b>	<b>4</b>
Vector concepts of static equilibrium, truss, frame and machine analysis. Stress and strain analysis of deformable structural components; stress transformations; beam deflections; column buckling. Prereq: Engr 1181 or 1187 or 1281H, and Physics 1250 or 1260, and Math 1152 or 1161 or 1172 or 1181H. Not open to students with credit for 2020.			
<b>2193</b>	<b>Individual Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Designed to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Special topics in Mechanical Engineering. The particular topic, credit hours, and the instructor will be announced the semester previous to the one in which the course is offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>2194H</b>	<b>Group Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Special topics in mechanical engineering. The particular topic, credit hours, and the instructor will be announced the semester previous to the one in which the course is offered. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>2850.01</b>	<b>Numerical Methods in Mechanical Engineering</b>	<b>U</b>	<b>3</b>
Numerical solutions of nonlinear equations, systems of linear equations, interpolation, curve-fitting, ordinary differential equations. Prereq: Enrollment as MechEng-BS student (No ME pre-majors can enroll in this course), or permission of instructor. Prereq or concur: Math 2174 or 2415 (415), or equiv. Not open to students with credit for 250.			
<b>2850.02</b>	<b>Numerical Methods in Mechanical Engineering</b>	<b>U</b>	<b>3</b>
Numerical solutions of nonlinear equations, systems of linear equations, interpolation, curve-fitting, ordinary differential equations. Prereq: Enrollment as IndEng-BS or ISE-PRE student, or permission of instructor. Prereq or concur: Math 2174 or 2415. Not open to students with credit for 250.			
<b>2900</b>	<b>Introduction to Design in Mechanical Engineering</b>	<b>U</b>	<b>3</b>
Introduction to the discipline of Mechanical Engineering through a structured design, build, and test sequence. Students will fabricate apparatus which requires a basic understanding of the full scope of Mechanical Engineering. Prereq: Enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor. Prereq or concur: MatScEn 2010.			
<b>3260</b>	<b>System Dynamics and Vibrations</b>	<b>U</b>	<b>3</b>
Applications of ordinary differential equations, Laplace transforms, transfer function analysis to first and second order systems, and single-degree-of-freedom mechanical and electrical systems. Prereq: 2850 (250) and 2900, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor. Prereq or concur: ECE 2300 or 2300.01 or 320. Not open to students with credit for 481 or 650.			
<b>3360</b>	<b>System Integration and Control</b>	<b>U</b>	<b>3</b>
Modeling of a variety of multi-domain systems, including electromechanical actuators, principles of feedback control, and analysis of control systems. Prereq: 3260 or 3261, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor. Prereq or concur: 3503 (504) or 3504. Not open to students with credit for 482 or 571.			
<b>3500</b>	<b>Engineering Thermal Sciences</b>	<b>U</b>	<b>3</b>
Introduction to thermodynamics, fluid mechanics and heat transfer with engineering applications. Prereq: Math 2174 or 2177 or 2255 (255) or 2415 (415), and Physics 1250 (131). Not open to students with credit for 500 or enrolled in MechEng major.			
<b>3501</b>	<b>Introduction to Engineering Thermodynamics</b>	<b>U</b>	<b>3</b>
Principles of engineering thermodynamics from the classical perspective, including first and second laws of thermodynamics, with selected applications. Prereq: 2850 and 2900, and Chem 1210 or 1250; and enrollment as MechEng-BS student; or permission of instructor. Not open to students with credit for 3502, or to MechEng pre-majors.			
<b>3503</b>	<b>Introduction to Fluid Mechanics</b>	<b>U</b>	<b>3</b>
A study of the basic concepts, fundamental equations, and applications of fluid mechanics to engineering problems. Prereq: 2850 (250), and 3501 (501) or 3502, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor. Not open to students with credit for 503 or 504.			
<b>3670</b>	<b>Design and Analysis of Machine Elements I</b>	<b>U</b>	<b>2</b>
Design of mechanisms. Application of general mechanical engineering principles to the design and analysis of mechanical components. Prereq: 2020 (420) and 2030 (430) and 2900 and 2850 (250), and enrollment as MechEng-BS student; or permission of instructor. Not open to students with credit for 553 or 561 or to MechEng pre-majors.			

<b>3671</b>	<b>Design and Analysis of Machine Elements II</b>	<b>U</b>	<b>3</b>
Continuation of 3670 and 3571. Prereq: 3670 or 3676, and 3751, and enrollment as MechEng-BS student; or permission of instructor. Not open to students with credit for 563, or to MechEng pre-majors.			
<b>3751</b>	<b>Kinematics and Mechanism Design</b>	<b>U</b>	<b>2</b>
This course is intended to help students develop an intuitive understanding of the design concepts for machinery and mechanisms. Topics covered are: kinematic joints, mobility analysis, kinematic synthesis of planar linkages, computer-aided design of mechanisms, kinematic analysis, Cam motion program synthesis, and cam profile design. Prereq: 2030 and 2900, or permission of instructor. Not open to students with credit for 3670 (Aur17 or before), 3553, or 553.			
<b>3870</b>	<b>Introduction to Measurements and Data Analysis in Mechanical Engineering</b>	<b>U</b>	<b>3</b>
Foundation in experimental measurement and data analysis in mechanical engineering; team planning and execution of experiments; technical report writing. Prereq: Stat 3450 or equiv, and 3260 (482) or 3261, and a second writing course, and enrollment in Mechanical Engineering major; or permission of instructor. Prereq or concur: 3503 (504) or 3504. Not open to students with credit for 570.			
<b>4193.01</b>	<b>Individual Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Designed to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>4193.02</b>	<b>Individual Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Designed to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of Instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			
<b>4194</b>	<b>Group Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Special topics in mechanical engineering. The particular topic, credit hours, and the instructor will be announced the semester previous to the one in which the course is offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4194H</b>	<b>Group Studies in Mechanical Engineering</b>	<b>U</b>	<b>1 - 5</b>
Special topics in Mechanical Engineering. The particular topic, credit hours, and the instructor will be announced the semester previous to the one in which the course is offered. Prereq: Honors standing, and enrollment in MechEng major; or permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>4505</b>	<b>Introduction to Nuclear Science and Engineering</b>	<b>U</b>	<b>3</b>
Discussion of nuclear energy and nuclear radiation; sources, methods of utilization, and projections for future engineering uses. Prereq: Math 2153 or above and Physics 1251, or permission of instructor. Not open to students with credit for NuclEn 4505. Cross-listed in NuclEn.			
<b>4510</b>	<b>Heat Transfer</b>	<b>U</b>	<b>3</b>
A study of the fundamentals of conduction, convection, and thermal radiation energy transfer with engineering applications. Prereq: 3503 (504) or 3504, and MechEng-BS student (no pre-majors); or permission of instructor. Not open to students with credit for 510.			
<b>4536</b>	<b>Nuclear Reactor Systems</b>	<b>U</b>	<b>3</b>
Introductory course covering concepts of nuclear power reactor systems, thermal and mechanical design aspects, and economics of nuclear power plants. Prereq: 4505 (505) or NuclEn 4505 (505); or permission of instructor. Not open to students with credit for 6536 (736), NuclEn 4536 (736), or 6536 (736). Cross-listed in NuclEn.			
<b>4684</b>	<b>Product Design Capstone I</b>	<b>U</b>	<b>4</b>
Fundamentals of the product design process, from concept creation to final implementation, including product architecture and design for manufacture and assembly. Part I will end with initial build and Part II will continue with implementation and testing. Prereq: 3671 (563), and 3360 or 3361 (571); and 3870 (570). Prereq or concur: 4510 (510), and enrollment as MechEng-BS student; or permission of instructor. Not open to students with credit for 5682 (682) or ISE 5682 (682) or 5560.			
<b>4685</b>	<b>Product Design Capstone II</b>	<b>U</b>	<b>2</b>
Fabrication and testing of the product prototype developed in MechEng 4684, Product Design Capstone I. Prereq: 4684.			
<b>4870</b>	<b>Multidisciplinary Mechanical Engineering Laboratory</b>	<b>U</b>	<b>2</b>
Builds upon prior laboratory experiences and integrates thermal and mechanical system concepts; focus on problem solving using experimental and analytical/computational methods. Prereq: 3360, 3671, and 3870, and enrollment as MechEng-BS or EngPhys-BS student. Prereq or concur: 4510.			

## 312 Mechanical Engineering

<b>4900</b>	<b>ME Capstone Design I</b>	<b>U</b>	<b>1½</b>
First course of 2-semester senior capstone series. Fundamentals of engineering design process and the technical and professional skills needed in Mechanical Engineering. Lectures, hands-on project. Prereq: 3671 (563), and 3360 or 3361 (571); and 3870 (570). Prereq or concur: 4510 (510); and enrollment as MechEng-BS student; or permission of instructor. Concur: 4901.01 or 4902.01 or 4903.01 or 4904.01 or 4905.01. Not open to students with credit for Engr 4901 (658), 564, or 565, or MechEng pre-majors.			
<b>4901.01</b>	<b>ME Capstone Design II: General Projects</b>	<b>U</b>	<b>1</b>
Second course of 2-semester capstone sequence. Students work on design problems proposed by faculty. Emphasis on problem definition, requirements, and design proposal. Concur: 4900, and enrollment as MechEng-BS student; or permission of instructor. Not open to MechEng pre-majors.			
<b>4901.02</b>	<b>ME Capstone Design III: General Projects</b>	<b>U</b>	<b>2½</b>
Third course of 2-semester senior capstone series. Complete work on design problem proposed by faculty. Emphasis on detailed design, prototype, evaluation, and documentation. Prereq: 4901.01, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor.			
<b>4902.01</b>	<b>ME Capstone Design II: Student Design Competitions</b>	<b>U</b>	<b>1</b>
Second course of 2-semester capstone sequence. Students work on design problems arising from various student competitions in engineering. Emphasis on problem definition, requirements, and design proposal. Concur: 4900, and enrollment as MechEng-BS student; or permission of instructor. Not open to MechEng pre-majors.			
<b>4902.02</b>	<b>ME Capstone Design III: Student Design Competitions</b>	<b>U</b>	<b>2½</b>
Third course of 2-semester senior capstone series. Complete work on design project associated with student design competitions. Emphasis on detailed design, prototype, evaluation, and documentation. Prereq: 4902.01, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor.			
<b>4903.01</b>	<b>ME Capstone Design II: Industry Projects</b>	<b>U</b>	<b>1</b>
Second course of 2-semester capstone sequence. Students work on design problems sponsored and/or proposed by industry. Emphasis on problem definition, requirements, and design proposal. Concur: 4900, and enrollment as MechEng-BS student; or permission of instructor. Not open to MechEng pre-majors. This course is progress graded.			
<b>4903.02</b>	<b>ME Capstone Design III: Industry Projects</b>	<b>U</b>	<b>2½</b>
Third course of 2-semester senior capstone series. Complete work on design project from industry. Emphasis on detailed design, prototype, evaluation, and documentation. Prereq: 4903.01, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor.			
<b>4904.02</b>	<b>ME Capstone Design III: Humanitarian Projects</b>	<b>U</b>	<b>2½</b>
Third course of 2-semester senior capstone series. Complete work on humanitarian project. Emphasis on detailed design, prototype, evaluation, and documentation. Prereq: 4904.01, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor.			
<b>4905.01</b>	<b>ME Capstone Design II: Assistive Devices</b>	<b>U</b>	<b>1</b>
Second course of 2-semester senior capstone series. Students begin to work on assistive devices for persons with disabilities. Emphasis on problem definition, requirements, and design proposal. Concur: 4900, and enrollment as MechEng-BS student; or permission of instructor. Not open to MechEng pre-majors.			
<b>4905.02</b>	<b>ME Capstone Design III: Assistive Devices</b>	<b>U</b>	<b>2½</b>
Third course of 2-semester senior capstone series. Complete work on assistive devices for persons with disabilities. Emphasis on detailed design, prototype, evaluation, and documentation. Prereq: 4905.01, and enrollment as MechEng-BS student (No ME pre-majors can enroll in this course); or permission of instructor.			
<b>4906.01</b>	<b>ME Capstone Design II: Special Projects</b>	<b>U</b>	<b>1</b>
Second course of 2-semester senior capstone series. Students begin to work on their design project. Emphasis on problem definition, requirements, design proposal. Prereq: 4900. This course is progress graded.			
<b>4906.02</b>	<b>ME Capstone Design III: Spec Projects</b>	<b>U</b>	<b>2½</b>
Third course of 2-semester senior capstone series. Complete work on design problem proposed by faculty. Emphasis on detailed design, prototype, evaluation, documentation. Prereq: 4906.01.			
<b>4998</b>	<b>Undergraduate Research in Mechanical Engineering</b>	<b>U</b>	<b>1 - 2</b>
Opportunity for undergraduate students to conduct research in Mechanical Engineering. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			

<b>4998H</b>	<b>Undergraduate Research in Mechanical Engineering</b>	<b>U</b>	<b>1 - 2</b>
Opportunity for undergraduate Honors program students to conduct research in Mechanical Engineering. Prereq: Honors standing, and enrollment in MechEng major, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4999</b>	<b>Mechanical Engineering Undergraduate Research for Thesis</b>	<b>U</b>	<b>1 - 3</b>
Students are offered the opportunity to pursue independent project/research. Student presentations and undergraduate thesis writing is included. Prereq: CPHR 3.0 or above, and Sr standing in MechEng major; or permission of instructor. Repeatable to a maximum of 6 cr hrs or 4 completions.			
<b>4999H</b>	<b>Mechanical Engineering Undergraduate Research for Thesis</b>	<b>U</b>	<b>1 - 3</b>
Honors program students are offered the opportunity to pursue independent project/research. Student presentations and undergraduate Honors thesis writing is included, to enable graduation with Research Distinction in Mechanical Engineering. Prereq: Honors standing, and CPHR 3.4 or above, and Sr standing in MechEng major; or permission of instructor. Repeatable to a maximum of 6 cr hrs or 4 completions.			
<b>5030</b>	<b>Intermediate Dynamics</b>	<b>U G</b>	<b>3</b>
This course emphasizes dynamics of single/multi-degree-of-freedom systems, including particles and rigid bodies, and is aimed as an extensive introduction to the principles of analytical mechanics. Of particular interest is the investigation of Lagrange's equations of motion for particles and rigid bodies. Prereq: 2030, or permission of instructor. Not open to students with credit for 5194 (Au14 or Sp16).			
<b>5134</b>	<b>Introduction to Vibrations of Deformable Solids</b>	<b>U G</b>	<b>3</b>
Introduction to the analysis of the free and forced transverse vibrations of strings, beams, membranes and plates and the longitudinal and torsional vibrations of prismatic bars. Prereq: 2020 (420) or 2040, and Math 2174, 2177, or 2415 (415), and enrollment in MechEng major; or Grad standing in MechEng. Not open to students with credit for 734.			
<b>5139</b>	<b>Applied Finite Element Method</b>	<b>U G</b>	<b>3</b>
Overview of finite element method, description of finite element software, modeling requirements and techniques, analysis using general purpose software, and case studies. Prereq: 2020 or 2040 or equiv, and enrollment in MechEng major; or Grad standing in Engineering.			
<b>5144</b>	<b>Engineering Fracture Mechanics</b>	<b>U G</b>	<b>3</b>
Fracture and fatigue of solids; stress intensity factors; stability of cracks; compliance and energy methods; plane stress, plane strain effects; crack propagation and arrest criteria. Prereq: 2020 (420) or 2040, and Math 2174, 2177, or 2415 (415); or Grad standing in Engineering. Not open to students with credit for 744.			
<b>5162</b>	<b>Introduction to Laminated Composite Materials</b>	<b>U G</b>	<b>3</b>
Introduction to anisotropic material behavior and failure assessment of laminated composite materials. Classical lamination theory, beams, plates and shells. Prereq: 2020 (420) or 2040; or Grad standing in Engineering; or permission of instructor. Not open to students with credit for 662, 762, CivilEn 5162, 662, or 762. Cross-listed in CivilEn.			
<b>5180</b>	<b>Mechanics of Biomolecular Systems</b>	<b>U G</b>	<b>3</b>
Introduction to biomolecules and systems in the context of cellular functions. In particular the course focuses on the physical properties of biomolecules and the physical interactions that mediate their functions. Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 694E (Spring 2010).			
<b>5194</b>	<b>Group Studies in Mechanical Engineering</b>	<b>U G</b>	<b>1 - 5</b>
Special topics in Mechanical Engineering. The particular topic, credit hours, and the instructor will be announced the semester previous to the one in which the course is offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>5234</b>	<b>Vehicle Dynamics</b>	<b>U G</b>	<b>4</b>
A first course in vehicle dynamics devoted to the basic concepts of rubber wheeled vehicles with an actual driving and demonstrated laboratory. Prereq: 3360 (482) and 3671 (563), or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 654 or 754.			
<b>5240</b>	<b>Mechanical Vibrations</b>	<b>U G</b>	<b>3</b>
Free and forced vibration analysis of single-degree-of-freedom systems with various forms of damping, vibration isolation and control methods and devices, vibration sensors, equations of motion of multi-degree of freedom systems using Lagrange's method, Eigen value problem, modal analysis method for free and forced vibration analysis, frequency-domain data analysis fundamentals. Prereq: 3260 (481). Prereq or concur: 3360 (482), or Grad standing in Engineering. Not open to students with credit for 650, 666, or 7250.			
<b>5241</b>	<b>Engineering Acoustics</b>	<b>U G</b>	<b>3</b>
Acoustics applications survey. Wave propagation phenomena. Introduction to human hearing. Mathematics review. Acoustic wave equation, propagation, and metrics. Instrumentation for and evaluation of acoustic measurements. Understanding acoustic sources and sound radiation characteristics. Introductory architectural acoustics, engineering noise control, and psychoacoustics. Prereq: 3260, or Grad standing, or permission of instructor.			

<b>5339</b>	<b>Simulation Techniques for Dynamic Systems</b>	<b>U G</b>	<b>3</b>
Introduction and use of software tools for dynamic system modeling, control system analysis, and design. Application to real world dynamic systems, with emphasis on model development and validation, parameter identification, and results presentation. Prereq: 3360 (571) or equiv, and enrollment in MechEng; or Graduate standing in MechEng; or permission of instructor.			
<b>5359</b>	<b>Extracellular Matrix in Bioengineering</b>	<b>U G</b>	<b>3</b>
Extracellular matrix (ECM) present in mammalian tissue(s) is important for the integrity and tensile strength of the underlying tissue as well as for cell-matrix interactions and matrix mineralization. This course provides an overview of the composition, structure and function of ECM and its application(s) in bioengineering. Prereq: Jr, Sr, or Grad standing in MechEng or BiomedE, or permission of instructor. Not open to students with credit for BiomedE 5359.			
<b>5372</b>	<b>Design and Control of Mechatronic Systems</b>	<b>U G</b>	<b>3</b>
Introduction to multi-domain (mechanical, thermal, fluid, electrical, electronic, electro-mechanical) system design, dynamic modeling, and control system design and analysis techniques. Prereq: 3360 (571) or 3361, or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 672 or 674.			
<b>5374</b>	<b>Smart Materials and Intelligent Systems</b>	<b>U G</b>	<b>3</b>
Macromechanical modeling of smart materials including piezoceramics, magnetostrictives, shape memory alloys, magnetorheological fluids, and active polymers. Constitutive and system-level modeling. Design of smart dynamic systems. Prereq: 3360 (571) or 3361, or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 774.			
<b>5427</b>	<b>Introduction to Turbomachinery</b>	<b>U G</b>	<b>3</b>
Introduction to analysis and design of turbomachinery. Prereq: 3503 or 3504 (504), or Grad standing in MechEng. Not open to students with credit for 627.			
<b>5463</b>	<b>Introduction to Real Time Robotics Systems</b>	<b>U G</b>	<b>3</b>
Components of a robot system, robot forward and reverse kinematics; robot dynamics; robot force generation, robot trajectory generation. Prereq: Math 2177 or 2174, or 2415 and 2568; and Physics 1250, 1250H, 1260, or 2300; and CSE 1221, 1222, Engr 1181, 1281.01H, 1281.02H, 1221, or 1222; or Grad standing in Engr; or permission of instructor. Not open to students with credit for 7752 or ECE 5463. Cross-listed in ECE.			
<b>5502</b>	<b>Engineering Thermodynamics</b>	<b>U G</b>	<b>3</b>
Technical elective in Engineering Thermodynamics including energy analysis, non-reacting and reacting gas mixtures, combustion, psychrometrics, chemical and phase equilibrium, thermoeconomics and applications. Prereq: 3501 (501) or 3502, or equiv. Not open to students with credit for 502.			
<b>5512</b>	<b>Design of Heat Exchangers</b>	<b>U G</b>	<b>2</b>
Design methods, heat transfer and pressure drop in single phase and two phase heat exchangers. Design of single phase and two phase heat exchangers. Prereq: 4510 (510), or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 612.			
<b>5530</b>	<b>Internal Combustion Engines</b>	<b>U G</b>	<b>3</b>
Design and operating characteristics of contemporary internal combustion engines, induction/exhaust breathing, boosting, variable valvetrains, combustion and knock, fuel economy, alternative fuels, and advanced powertrains. Prereq: 3501 or 3502 (502), or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 630.			
<b>5531</b>	<b>Automotive Powertrain Laboratory</b>	<b>U G</b>	<b>3</b>
This course focuses on analysis and testing of advanced automotive systems. These systems include advanced powertrain components like turbocharged GDI engines, electric powertrain components like electric motors, and autonomous vehicle sensing technologies like radar and lidar. Students will conduct labs and use supplied data to conduct analysis typical of practicing automotive engineers. Prereq: 3870, or Grad standing in Engr, or permission of instructor.			
<b>5539</b>	<b>Applied Computational Fluid Dynamics and Heat Transfer</b>	<b>U G</b>	<b>3</b>
Introduces basic concepts in Computational Fluid Dynamics (CFD) and Computational Heat Transfer (CHT), teaches thermo-fluid analysis of engineering systems, and enhances understanding of fluid flow and heat transfer. Prereq: 3501 or 3502 (502), and 3503 or 3504 (504). Prereq or concur: 4510 (510), or Grad standing in MechEng.			
<b>5541</b>	<b>Heating, Ventilating, and Air Conditioning</b>	<b>U G</b>	<b>3</b>
Analysis of components and systems for heating, ventilating and air-conditioning. Prereq: 4510 (510), or Grad standing in MechEng. Not open to students with credit for 641.			
<b>5550</b>	<b>Engineering Principles in Cancer</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to introduce engineering principles in the context of cancer progression and therapy. Prereq: 3500, 3503, or CBE 2420; or permission of instructor. Not open to students with credit for BioMedE 5550 or CBE 5550. Cross-listed in BioMedE and CBE.			

<b>5600</b>	<b>Applied Project Management in Product Development Team Environments</b>	<b>U G</b>	<b>3</b>
Students learn to apply project management concepts in product development team environments; includes relevant theory, tools, and techniques used in industry; relevant systems engineering concepts for designing complex products are introduced. Prereq: Jr, Sr, Grad status; and enrollment in College of Engineering or Engineering minor. Not open to with credit for 4194 or 5194.			
<b>5670</b>	<b>Advanced MCAD modeling with CATIA</b>	<b>U G</b>	<b>3</b>
Advanced techniques for solid, surface and assembly modeling using CATIA workbenches. Covers not only construction methods, but also how geometric modelers work internally: constraint solving, geometric DoFs, history roll forward-rollback, BRep data structure, Boolean ops, math representations of curves and surfaces. Teaches effective strategies for modeling, parametrization and robust histories. Prereq: 3670, or Grad standing in Engr, or permission of instructor.			
<b>5680</b>	<b>Computer Aided Design and Manufacturing</b>	<b>U G</b>	<b>4</b>
Design of machine components, surfaces, and assemblies using parametric and feature-based design principles and advanced design tools. Prereq: 3670 (561), or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 621 or 683.			
<b>5682.01</b>	<b>Fundamentals of Product Design Engineering</b>	<b>U G</b>	<b>3</b>
Lecture covering the fundamentals of the product design process, from concept creation to final implementation, including product architecture and design for manufacture and assembly. An optional, corresponding project-based lab course (ME/ISE 5683) offers practical application of this material. Only open to students enrolled in majors in the College of Engineering. Prereq: Jr, Sr, or Grad standing in the College of Engineering, or permission of instructor. Not open to students with credit for 4684, 5682 (682), 5682.02, 5684, ISE 5560, 5682 (682), or 5682.02. Cross-listed in ISE.			
<b>5682.02</b>	<b>Product Design Engineering for Entrepreneurs</b>	<b>U G</b>	<b>3</b>
An engineering perspective on product development for non-engineering students in the Entrepreneurship & Innovation minor. This course covers fundamentals of the product design process, from user research to concept creation to final implementation and manufacturing. Not open to students in the College of Engineering, does not count as an engineering Technical Elective. Prereq: Enrollment in a major outside of the College of Engineering, and enrollment in the Entrepreneurship & Innovation minor. Not open to students with credit for 5682, 5682.01, 5194 (AU15, SP16, AU16, Abell), ISE 5682, or 5682.01, or enrolled in a major within the College of Engineering.			
<b>5683</b>	<b>Fundamentals of Product Design Engineering Laboratory</b>	<b>U G</b>	<b>1</b>
This course is an optional laboratory to go with ISE/ME5682.01. This project-based lab gives students hands-on experience with the product design process introduced in lecture. Students will work with real people to identify opportunities to create innovative, product-based solutions. Students will go through the design process from conducting user research all the way to constructing prototypes. Prereq or concur: 5682.01 or ISE 5682.01, and enrollment in a major within the College of Engineering. Not open to students with credit for 5682, 5682.02, ISE 5682, or 5682.02. Cross-listed in ISE.			
<b>5700</b>	<b>Introduction to Musculoskeletal Biomechanics</b>	<b>U G</b>	<b>3</b>
Introduction to field of musculoskeletal biomechanics at a level appropriate for advanced undergraduates and early graduate students. Fundamental anatomy and physiology. Mechanics of muscle, tendon, ligament, meniscus, bone. Equations of motion for movement. Introduction to experimental methods. Prereq: 3670, or permission of instructor. Not open to students with credit for 6700.			
<b>5751</b>	<b>Design and Manufacturing of Compliant Mechanisms and Robots</b>	<b>U G</b>	<b>3</b>
Introduces methods and theories for kinematic and force analysis, synthesis of rigid body and compliant (flexible) mechanisms and robots. Pseudo-rigid-body model and CAD/CAE software will be used for modeling and analysis study. Students will be required to work on a team project to solve a real world design problem related to mechanisms and robots. Prereq: 3670 or equiv, or Grad standing in Engineering, or permission of instructor.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of department chairperson. Repeatable to a maximum of 15 cr hrs or 2 completions.			
<b>6193</b>	<b>Individual Studies in Mechanical Engineering</b>	<b>G</b>	<b>1 - 5</b>
Designed to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions. This course is graded S/U.			
<b>6193.01</b>	<b>Individual Studies in Mechanical Engineering</b>	<b>G</b>	<b>1 - 5</b>
Designed to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 15 completions.			

## 314 Mechanical Engineering

<b>6194</b>	<b>Group Studies in Mechanical Engineering</b>	<b>G</b>	<b>1 - 5</b>
Special topics in Mechanical Engineering. The particular topic, credit hours, and the instructor will be announced the term preceding the one in which the course is offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>6501</b>	<b>Gas Dynamics</b>	<b>G</b>	<b>3</b>
A study of one-dimensional and two-dimensional steady and one-dimensional unsteady compressible flows. Prereq: 3503 or 3504 (504), and Math 2174, 2255 (255), or 2415 (415); or Grad standing in MechEng; or permission of instructor. Not open to students with credit for 701.			
<b>6505</b>	<b>Intermediate Fluid Dynamics</b>	<b>G</b>	<b>3</b>
Principles and derivations of fundamental equations for incompressible flows with a special emphasis on formulation of problems. Prereq: 3503, or Grad standing in MechEng or AeroEng; or permission of instructor. Not open to students with credit for 705.			
<b>6507</b>	<b>Intermediate Numerical Methods</b>	<b>G</b>	<b>3</b>
Numerical techniques and computer algorithms to solve initial and boundary value problems relevant to engineering applications, such as heat conduction and mass diffusion. Prereq: 2850 (250), Math 2174 (568), 2415 (415), or 4512 (557 or 512); or Grad standing in MechEng, AeroEng, or NuclEn; or permission of instructor. Not open to students with credit for 707 or NuclEn 6507 (707). Cross-listed in NuclEn.			
<b>6510</b>	<b>Intermediate Heat Transfer</b>	<b>G</b>	<b>3</b>
In-depth derivation of equations and principles governing heat transfer with an emphasis on formulation of problems. Mass transfer is also introduced. Prereq: Grad standing in MechEng or AeroEng; or permission of instructor. Not open to students with credit for 710.			
<b>6515</b>	<b>Introduction to Microfluidics and Nanofluidics</b>	<b>G</b>	<b>3</b>
Principles of incompressible fluid mechanics & electrokinetic phenomena at the micro & nanoscale; biomedical applications with a laboratory illustrating fabrication techniques & experimental methods. Undergrad students encouraged to seek permission. Prereq: 3503 or 3504 (504) or equiv, or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 715 or BiomedE 5663. Cross-listed in BiomedE 5663.			
<b>6526</b>	<b>Combustion</b>	<b>G</b>	<b>3</b>
Fundamentals of energy conversion through combustion, thermodynamics and chemical kinetics of combustion, premixed flames, deflagration vs. detonation waves, diffusion flames, droplet combustion, and thermal ignition. Prereq: 3503, 3504 (504), or 4510 (510), or permission of instructor. Not open to students with credit for 726.			
<b>6536</b>	<b>Nuclear Reactor Systems and Analysis</b>	<b>G</b>	<b>3</b>
Intermediate-level course covering thermal and mechanical design aspects of nuclear power plants. The thermodynamics of operating nuclear power plants (BWRs and PWRs) are emphasized. Prereq: 4505 (505) or NuclEn 4505 (505); and MechEng 3501 or 3502 (502), or equiv; or permission of instructor. Not open to students with credit for 736 or NuclEn 6536 (763). Cross-listed in NuclEn.			
<b>6661</b>	<b>Advanced CAE Simulation for Structural Design</b>	<b>G</b>	<b>4</b>
Advanced FE modeling of nonlinear structural problems; min. weight design and topology optimization. Includes boundary, geometric and material nonlinearities, both rate independent and dependent. The emphasis is on modeling decision making and validation. This is not a traditional FE theory class but a hands-on, software-intensive modeling and simulation class with a significant lab component. Prereq: 5139; or Grad standing in AeroEng, CivilEn, MatScEn, or MechEng.			
<b>6665</b>	<b>Reliability Engineering I</b>	<b>G</b>	<b>3</b>
Focuses on system level reliability modeling approaches. Engineering system reliability modeling and prediction; reliability of programmable devices and human reliability; reliability and risk management of engineering systems. Prereq: 3260 (481), ECE 351, or ISE 4120 (510); or Grad standing; or permission of instructor. Not open to students with credit for 776.01.			
<b>6700</b>	<b>Musculoskeletal Biomechanics</b>	<b>G</b>	<b>3</b>
Fundamental anatomy and physiology. Mechanics of muscle, tendon, ligament, meniscus, and bone. Equations of motion for human movement. Introduction to experimental methods in musculoskeletal biomechanics. Prereq: Grad standing in MechEng or BiomedE, or permission of instructor. Not open to students with credit for 687 or 5700.			
<b>6716</b>	<b>Probabilistic Reliability and Safety Assessment</b>	<b>G</b>	<b>3</b>
Methods underlying probabilistic risk assessment (PRA) and how they are used in assessing the public health risk of nuclear systems. Prereq: 4505 (505), NuclEn 4505 (505), Grad standing, or permission of instructor. Not open to students with credit for 5716 (716) or NuclEn 5716 (716). Cross-listed in NuclEn.			
<b>7100</b>	<b>Introduction to Continuum Mechanics</b>	<b>G</b>	<b>3</b>
Continuum mechanics in Cartesian and general coordinates, vectors and tensors in indicial and direct notation, analysis of deformation and stress, balance principles. Prereq: 2020 (420) or 2040, and Math 2174, 2255 (255), or 2415 (415) or equiv; or Grad standing in Engineering; or permission of instructor. Not open to students with credit for 743 and 840.			

<b>7101</b>	<b>Constitutive Models in Continuum Mechanics</b>	<b>G</b>	<b>4</b>
Continuum-level constitutive models are developed, starting from a mechanistic point of view. Problems involving elasticity, plasticity, visco-elasticity, & rubber elasticity are discussed. Prereq: 7040, 7100, 740, or 743, or permission of instructor. Not open to students with credit for 847 and 864.			
<b>7163</b>	<b>Advanced Strength of Materials and Elasticity Theory</b>	<b>G</b>	<b>4</b>
Stress-Strain analysis of elastic solids: curved beams; non-symmetrical bending; non-circular torsion; beams on elastic foundations; load-deflection relations by energy methods; plane problems in elasticity theory; and applications to design Prereq: 2020 (420) or 2040, or equiv, and Math 2174 or 2255 (255) or 2415 (415); or Grad standing in MechEng. Not open to students with credit for 740 or 763.			
<b>7194</b>	<b>Group Studies in Mechanical Engineering</b>	<b>G</b>	<b>1 - 5</b>
Special topics in Mechanical Engineering. The particular topic, credit hours, and the instructor will be announced the term previous to the one in which the course is offered. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>7230</b>	<b>Advanced Dynamics</b>	<b>G</b>	<b>4</b>
Three-dimensional kinematics and dynamics of particles and rigid bodies using vector (Newton-Euler) and analytical (Lagrange's equations and Hamilton's principle) methods. Rotating systems. Non-holonomic systems. Prereq: Sr or Grad standing. Not open to students with credit for 733 or 735.			
<b>7236</b>	<b>Powertrain Dynamics</b>	<b>G</b>	<b>3</b>
Overview of dynamics and control of automotive powertrain systems. Emphasis on subsystem interactions. Analytical and numerical methods for dynamics of gas exchange, fueling, combustion and exhaust, and mechanical engine and transmission systems. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 781.			
<b>7250</b>	<b>Vibration of Discrete Systems</b>	<b>G</b>	<b>3</b>
Concepts of undamped and damped vibrations of single and multi degree of freedom discrete systems. Principles of modal analysis, analytical dynamics and approximate methods. Prereq: 2030, and Math 2174, 2255, or 2415; or Sr or Grad standing in Engineering.			
<b>7255</b>	<b>Turbomachinery Dynamics</b>	<b>G</b>	<b>3</b>
This course focuses on modeling the dynamics of rotating cyclic structures found in turbomachinery. The methods discussed in this class include traditional analysis methods such as cyclic analysis and small mistuning, and recent developments in modeling large mistuning, multi-stage systems, and friction damping. Prereq: Grad standing in Engr.			
<b>7259</b>	<b>Sliding Mode Control in Electromechanical Systems</b>	<b>G</b>	<b>3</b>
Sliding modes an efficient tool to control high order dynamic plants operating under uncertainty conditions. Prereq: 5372 or ECE 5750 (750). Not open to students with credit for 859 or ECE 859 or 7859. Cross-listed in ECE 7859.			
<b>7260</b>	<b>Automotive Noise and Vibration Control I</b>	<b>G</b>	<b>3</b>
Integrated study of vibrations, acoustics, digital signal processing and machinery dynamics based on case study approach; examination of design, manufacturing, material, performance, and economic considerations. Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 777 or 779.			
<b>7261</b>	<b>Automotive Noise and Vibration Control I with Lab</b>	<b>G</b>	<b>4</b>
Integrated study of vibrations, acoustics, digital signal processing and machinery dynamics based on case study approach; examination of design, manufacturing, material, performance, and economic considerations. Prereq: Sr or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 777 or 779.			
<b>7262</b>	<b>Automotive Noise and Vibration Control II</b>	<b>G</b>	<b>3</b>
Integrated study of vibrations, acoustics, signal processing and dynamics based on case study approach; continuation of 7260 with focus on experimental and design methods. Prereq: 7260.01 or 777, or Sr or Grad standing, or permission of instructor. Not open to students with credit for 778 or 779.			
<b>7290</b>	<b>Digital Control Engineering</b>	<b>G</b>	<b>3</b>
Theory of digital control engineering and its applications to the control of engineering systems including machines, vehicles, and processes. Prereq: 3360 and 3361, or 482 and 571, or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 773.			
<b>7372</b>	<b>Fault Diagnosis in Dynamic Systems</b>	<b>G</b>	<b>3</b>
Covers the theory and application of fault diagnosis in multi-domain dynamic systems. Theory and case studies drawn from industrial applications. Prereq: 7380, ECE 4551, 5551, AeroEng 4521, or permission of instructor.			

<b>7374</b>	<b>Polymer Smart Materials and Material Systems - Advanced Modeling and Characterization</b>	<b>G</b>	<b>3</b>
<p>Polymer smart materials and material systems with specific emphasis on mathematical modeling and characterization of ionic electroactive materials. Introduction of ionic electroactive materials as engineering materials and motivate students through various contemporary applications. Fabrication, characterization, electrochemical modeling for actuation, sensing, energy conversion and storage.</p> <p>Prereq: 5374, and Grad standing in Mechanical Engineering; or permission of instructor. Not open to students with credit for 7194 (Sp 2014 or Sp 2017, Polymer Smart Materials).</p>			
<b>7380</b>	<b>Lumped Parameter Modeling and System Analysis</b>	<b>G</b>	<b>3</b>
<p>Mathematical model development and response prediction of linear lumped parameter dynamic systems. Input-output and state-space methods are used to develop insights into design, sensor placement and diagnostics, and actuator selection for control.</p> <p>Prereq: Math 2174, 2415 (415), or 4512 (512), or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 780 or 880.</p>			
<b>7383</b>	<b>Electrochemical Energy Conversion and Storage Systems for Automotive Applications</b>	<b>G</b>	<b>3</b>
<p>Electrochemical energy storage (batteries) and conversion (fuel cells) systems for automotive applications covering state of the art principles of operations and modeling.</p> <p>Prereq: 6526 (726), or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 788 or distance learning version 7383.02.</p>			
<b>7384</b>	<b>Energy Modeling, Optimization, and Control of Hybrid Vehicles</b>	<b>G</b>	<b>3</b>
<p>Fundamentals of advanced propulsion vehicles (HEV, PHEV, BEV, FCV), covering motivation, architectures, taxonomy and components, energy analysis, modeling, simulation, optimization, and supervisory control/energy management principles.</p> <p>Prereq: Grad standing, or permission of instructor. Not open to students with credit for 784 or 785.</p>			
<b>7385</b>	<b>Advanced Methods in the Dynamics and Control of Human and Animal Movement</b>	<b>G</b>	<b>3</b>
<p>Mathematical ideas from control theory, optimization, nonlinear dynamics, and numerical computation that will be used to understand human, animal, and movement behavior and design.</p> <p>Prereq: 2030 (430), Math 2174, 2415 (415), 4568 (568), or 571, or Grad standing in Engineering.</p>			
<b>7440</b>	<b>Internal Combustion Engine Modeling</b>	<b>G</b>	<b>3</b>
<p>Comprehensive coverage of spark-ignited internal combustion engines modeling (fluid dynamics, thermodynamics and combustion). Additional coverage of compression ignition engine modeling and boosting.</p> <p>Prereq: 5530 or 630 or equiv, or permission of instructor. Not open to students with credit for 730.</p>			
<b>7511</b>	<b>Computational Fluid Dynamics</b>	<b>G</b>	<b>3</b>
<p>Advanced numerical methods for solving the Navier-Stokes equations using pressure-based techniques.</p> <p>Prereq: 6507 (707) or AeroEng 5615 (615), or permission of instructor. Not open to students with credit for 811.</p>			
<b>7513</b>	<b>Turbulence</b>	<b>G</b>	<b>3</b>
<p>A study of fundamentals of turbulent fluid flows and a few canonical flows.</p> <p>Prereq: 6505 (705), or permission of instructor. Not open to students with credit for 813 or AeroEng 7875 (875). Cross-listed in AeroEng 7875.</p>			
<b>7527</b>	<b>Jet Propulsion</b>	<b>G</b>	<b>3</b>
<p>Characteristics and performance of air breathing flight vehicle power plants and their components (inlets, compressors, combustors, turbines, and nozzles).</p> <p>Prereq: 4510 (510) or AeroEng 4550 (550), or permission of instructor. Not open to students with credit for 727 or AeroEng 8851 (851).</p>			
<b>7751</b>	<b>Advanced Kinematics and Mechanisms</b>	<b>G</b>	<b>3</b>
<p>Kinematic design and analysis of mechanisms. The focus is on kinematic representations of rigid transformations in space, derivation and solution of the kinematic constraint equations. Computer projects involve Solidworks and Matlab/Mathematica.</p> <p>Prereq: 3671 (563) or Engr 1183, or Grad standing; or permission of instructor. Not open to students with credit for 751.</p>			
<b>7752</b>	<b>Mechanics and Control of Robots</b>	<b>G</b>	<b>3</b>
<p>Introduction to the mechanical and mathematical principles of robotics including kinematics, rigid body dynamics, control theory, motion planning, sensors and actuators, legged locomotion and manipulation.</p> <p>Prereq: 2030 (430), Math 2174, 2415 (415), 4568 (568), 571, or equiv, or Grad standing in Engineering. Not open to students with credit for 752.</p>			
<b>7761</b>	<b>Optimum Design of Machines and Structures</b>	<b>G</b>	<b>3</b>
<p>Application of optimization techniques to mechanical systems and structures. The structures considered will typically be high performance structures such as in aircraft and spacecraft</p> <p>Prereq: Sr standing, or permission of instructor. Not open to students with credit for 761 or AAE 7844 (844). Cross-listed in AAE 7844.</p>			
<b>7765</b>	<b>Principles and Applications of Tribology</b>	<b>G</b>	<b>3</b>
<p>Mechanisms of friction, wear, and lubrication ranging from macro- to nanoscale that govern interfacial behavior; applications to friction and wear problems.</p> <p>Prereq: Not open to students with credit for 765 or 767.</p>			

<b>7837</b>	<b>Nanotechnology and Biomimetics</b>	<b>G</b>	<b>3</b>
<p>Introduction to nanotechnology, nanocharacterization techniques, nanotribology and nanomechanics of MEMS/NEMS and BioMEMS/BioNEMS materials and devices and an overview and research examples of biomimetics.</p> <p>Prereq: Not open to students with credit for 837.</p>			
<b>8038</b>	<b>Advanced Topics in Finite Element Method</b>	<b>G</b>	<b>3</b>
<p>State of the art advances in various areas of finite element methods covering a range of topics including element stability, time integration methods, and adaptive methods.</p> <p>Prereq: 7068 (768) or equiv, or Grad standing in MechEng, or permission of instructor. Not open to students with credit for 838.</p>			
<b>8193</b>	<b>Individual Studies in Mechanical Engineering</b>	<b>G</b>	<b>1 - 5</b>
<p>Designed to give the advanced student opportunity to pursue special studies not otherwise offered.</p> <p>Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 15 completions. This course is graded S/U.</p>			
<b>8194</b>	<b>Group Studies in Mechanical Engineering</b>	<b>G</b>	<b>1 - 5</b>
<p>Special topics in Mechanical Engineering. The particular topic, credit hours, and the instructor will be announced the term previous to the one in which the course is offered.</p> <p>Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.</p>			
<b>8220</b>	<b>Continuous Time Optimal Control</b>	<b>G</b>	<b>3</b>
<p>Embraces the three historical trends in dynamic optimization: Calculus of Variations, Pontryagin's Minimum Principle, and Bellman's Principle of Optimality. Not only mathematical aspects of the three principles will be taught, but also their strengths and weaknesses - it is often less important to know how to apply a given principle than to know when.</p> <p>Prereq: 5372 or ECE 5551, or permission of instructor. Not open to students with credit for ECE 8250. Cross-listed in ECE 8250.</p>			
<b>8230</b>	<b>Nonlinear Dynamics</b>	<b>G</b>	<b>3</b>
<p>Analytical, geometric, and perturbation methods for study of nonlinear mechanical systems, and the dynamical phenomena that arise in nonlinear systems including stability, bifurcations, and hysteresis.</p> <p>Prereq: 7250 (731), or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 832.</p>			
<b>8250</b>	<b>Vibration of Continuous Systems</b>	<b>G</b>	<b>3</b>
<p>Analysis of one, two and three dimensional continuous vibratory systems including strings, beams, membranes, plates and shells using exact and approximate methods with various boundaries.</p> <p>Prereq: 4030 (430) or 7250 (731), and Math 2255 (255) or equiv; or permission of instructor. Not open to students with credit for 734.</p>			
<b>8260</b>	<b>Advanced Engineering Acoustics</b>	<b>G</b>	<b>3</b>
<p>Acoustic wave equations and harmonic solution; radiation, transmission, absorption and control of sound waves; structural and flow sources; computational and experimental methods; engineering approximations.</p> <p>Prereq: 5240 (666), or Grad standing in Engineering, or permission of instructor. Not open to students with credit for 766.</p>			
<b>8312</b>	<b>Diesel Powertrain Systems Control</b>	<b>G</b>	<b>3</b>
<p>Control and estimation system designs for diesel powertrain and after treatment systems.</p> <p>Prereq: 7236 (781), or Grad standing in Engineering, or permission of instructor.</p>			
<b>8322</b>	<b>Vehicle System Dynamics and Control</b>	<b>G</b>	<b>3</b>
<p>Control and estimation system designs for vehicle systems.</p> <p>Prereq: Grad standing in Engineering, or permission of instructor.</p>			
<b>8352</b>	<b>Robust Control of Mechatronic Systems</b>	<b>G</b>	<b>3</b>
<p>This course is focused on the application of the parameter space approach of robust control to mechatronic systems including ADAS and automated driving. The students will learn how to design multi-objective low order controllers in parameter space based on Hurwitz stability, D-stability, phase margin bounds, gain margin bounds and mixed sensitivity bounds.</p> <p>Prereq: Grad standing in MechEng or ECE, or permission of instructor.</p>			
<b>8503</b>	<b>Statistical Thermodynamics</b>	<b>G</b>	<b>3</b>
<p>Microscopic aspects of thermodynamics for engineering graduate students. Starts with kinetic gas theory and classical statistics of independent particles. Derives statistical distribution functions and thermodynamic properties of real substances.</p> <p>Prereq: Grad standing in MechEng or AeroEng, and permission of instructor. Not open to students with credit for 803.</p>			
<b>8514</b>	<b>Optical Techniques in Fluid Flows</b>	<b>G</b>	<b>3</b>
<p>Fundamentals of lasers, optics, and diatomic spectroscopy, and their application to flow and combustion diagnostics.</p> <p>Prereq: Grad standing in Engineering or the Sciences, or permission of instructor. Not open to students with credit for 814.</p>			
<b>8518</b>	<b>Advanced Mathematical Methods in Mechanical Engineering</b>	<b>G</b>	<b>3</b>
<p>Fourier series, complex differentiation and integration and transform and Green's function for solution of problems arising in heat transfer, solid mechanics, fluid mechanics; asymptotic analysis.</p> <p>Prereq: Grad standing in Mechanical, Aerospace, or Nuclear Engineering; or permission of instructor. Cross-listed in AeroEng 8802.</p>			

## 316 Mechanical Engineering

<b>8603</b>	<b>Irreversible Thermodynamics and Transport of Charge, Heat, and Spin</b>	<b>G</b>	<b>3</b>
Ohm's, Fourier and Fick's laws, which relate linearly the transport of electrical charge, heat and matter to voltages, temperatures and concentrations gradients, are generalized in the framework of irreversible thermodynamics. The microscopic mechanisms of transport of heat, electrical charge and magnetization by elemental excitations (electrons, phonons and magnons) are explained. Prereq: 8503 or statistical mechanics, and permission of instructor.			
<b>8888</b>	<b>Mechanical Engineering Graduate Seminar</b>	<b>G</b>	<b>1</b>
Lecture and discussion of current topics related to Mechanical Engineering presented by graduate students, staff, and guest speakers. Course does not count toward course work required for MS or PhD degrees. Prereq: Grad standing in MechEng, AeroEng, or NuclEn. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8901</b>	<b>Future Academic Scholars Training I for MAE</b>	<b>G</b>	<b>2</b>
To provide Ph.D. students in the Department of Mechanical and Aerospace Engineering an opportunity to learn, understand, and practice aspects of effective teaching specific to mechanical, aerospace and nuclear engineering. Prereq: Enrollment in Mechanical, Aerospace, or Nuclear Engineering Ph.D. program; or permission of instructor. This course is graded S/U.			
<b>8902</b>	<b>Future Academic Scholars Training II for MAE</b>	<b>G</b>	<b>2</b>
To provide Ph.D. students in the Department of Mechanical and Aerospace Engineering an opportunity to learn and understand what it takes to get an academic position in a research university and to become a successful faculty member. Prereq: Enrollment as a PhD student in Mechanical, Aerospace, or Nuclear Engineering; or permission of instructor. This course is graded S/U.			
<b>8998</b>	<b>Graduate Research in Mechanical Engineering</b>	<b>G</b>	<b>1 - 16</b>
Mechanical Engineering graduate research for thesis. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Mechanical Engineering Research for Dissertation</b>	<b>G</b>	<b>1 - 16</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## Medical Dietetics

<b>1100</b>	<b>Careers in Dietetics</b>	<b>U</b>	<b>1</b>
An introduction to the roles and responsibilities of the dietitian; the educational preparation of the dietitian and employment opportunities.			
<b>3100</b>	<b>Human Nutrition and Metabolism</b>	<b>U</b>	<b>3</b>
Integration of principles related to foods, nutrients, physiology, and biochemistry as they apply to nutritional care for the promotion of health and prevention of disease. Prereq: Chem 1210 and 1220; and Biology 1101 or 1113; and HumnNtr 2310; or equivalent coursework; or permission of instructor.			
<b>4200</b>	<b>Management in Medical Dietetics</b>	<b>U</b>	<b>3</b>
The study of the principles of food management systems, including food procurement, food distribution, environment management, facility design, and introductory financial controls in noncommercial foodservice segments.			
<b>4500</b>	<b>Health Promotion and Community Nutrition</b>	<b>U</b>	<b>3</b>
Study of community needs assessment, national nutrition policy, design and evaluation of programs and cultural factors to promote the health and nutritional status of the community. Prereq: HumnNtr 2310.			
<b>4700</b>	<b>Research Design in Medical Dietetics</b>	<b>U</b>	<b>1</b>
Concepts related to the planning, conducting, tabulating and reporting of research in dietetics. Prereq: Enrollment in MedDiet program.			
<b>4900</b>	<b>Nutrition Assessment</b>	<b>U</b>	<b>3</b>
Methods of gathering, interpreting, and reporting nutrition assessment data. Prereq: HumnNtr 2310, EEOB 2520, or equiv.			
<b>4910</b>	<b>Nutr Care Process I</b>	<b>U</b>	<b>3</b>
Nutrition care process: pathophysiology, overview of medical treatment; nutrition assessment, diagnosis, intervention: monitoring and evaluation of nutritional care for infants, children, adolescents, and adults. Prereq: Enrollment in MedDiet program. Concur: 4911 and 4912.			
<b>4911</b>	<b>Nutrition Care Process II</b>	<b>U</b>	<b>3</b>
Nutrition care process: Principles of individual and group education and nutrition counseling as applied to responsibilities of the dietitian. Prereq: Enrollment in MedDiet program. Concur: 4910, 4912, or 4911.			
<b>4912</b>	<b>Nutrition Care Process III</b>	<b>U</b>	<b>2</b>
Laboratory and experiential application of the nutrition care process for disorders of body weight, musculoskeletal system, cardiovascular system; gastrointestinal tract and endocrine system. Prereq: Enrollment in MedDiet program. Concur 4910 and 4911.			

<b>4923</b>	<b>Nutr Car Proc IV</b>	<b>U</b>	<b>3</b>
Nutrition care process: Pathophysiology, overview of medical treatment; nutrition assessment, diagnosis, intervention: monitoring and evaluation of nutritional care of infants, children, adolescents, and adults. Prereq: A grade of B or above in 4910, 4911, and 4912, and enrollment in MedDiet. Concur: 4924 and 4925.			
<b>4924</b>	<b>Nutrition Care Process V</b>	<b>U</b>	<b>3</b>
Nutrition care process: Principles of individual and group education and nutrition counseling as applied to responsibilities of the dietitian. Prereq: Enrollment in MedDiet. Concur: 4923 and 4925.			
<b>4925</b>	<b>Nutrition Care Process VI</b>	<b>U</b>	<b>2</b>
Laboratory and experiential application of the nutrition care process for disorders of hepatobiliary, renal, neurological, respiratory, critical care, cancer, AIDS, and inborn errors of metabolism. Prereq: Enrollment in MedDiet. Concur: 4923 and 4924.			
<b>5189</b>	<b>Dietetic Professional Practice I</b>	<b>U G</b>	<b>1 - 12</b>
Clinical experience in a specific health care system uses inpatient, outpatient, foodservice and community-based dietetic practice. The student works under the direction of Registered Dietitians and the supervision of medical dietetics faculty. Prereq: Enrollment in the MedDiet program. Repeatable to a maximum of 12 or hrs or 3 completions. This course is graded S/U.			
<b>5289</b>	<b>Dietetic Professional Practice II</b>	<b>U G</b>	<b>1 - 12</b>
Clinical experience in a specific health care system uses inpatient, outpatient, foodservice and community-based dietetic practice. The student works under the direction of Registered Dietitians and the supervision of medical dietetics faculty. Prereq: Enrollment in MedDiet. Repeatable to a maximum of 12 or hrs or 3 completions. This course is graded S/U.			
<b>5389</b>	<b>Dietetic Professional Practice III</b>	<b>U G</b>	<b>1 - 12</b>
Field experience in a specific health care system uses inpatient, outpatient, foodservice and community-based dietetic practice. The student works under the direction of Registered Dietitians and the supervision of medical dietetics faculty. Prereq: Enrollment in MedDiet. Repeatable to a maximum of 12 or hrs or 3 completions. This course is graded S/U.			
<b>5705</b>	<b>Nutrition and Physical Performance</b>	<b>U G</b>	<b>2</b>
Integration of nutrition, exercise physiology, and biochemistry. Use of nutrients as fuel, interaction between nutrients and exercise performance, assessment of energy expenditure and nutritional status, interactions among diet, exercise and health. Prereq: 4609 (610). Not open to students with credit for 705. Cross-listed in HumnNtr.			
<b>5800</b>	<b>Advanced Nutrition Therapy in Complex Disease States</b>	<b>U G</b>	<b>3</b>
Study of nutrition therapy in disease: interrelationships of nutrition with biochemical, physiological and anatomical changes associated with acute, chronic and terminal illness, surgery and trauma. Prereq: Credit in general chemistry, biology, physiology, nutritional assessment, nutritional therapy, or education and counseling, or permission of instructor. Not open to students with credit for 645 or 885.			
<b>5825</b>	<b>Advanced Practice in Nutrition Assessment and Counseling</b>	<b>U G</b>	<b>3</b>
In-depth analysis of the literature and current practice for use in nutrition assessment and counseling for both healthy and medically complex patients with acute, chronic and terminal illnesses.			
<b>5850</b>	<b>Advanced Management and Current Topics in Medical Dietetics</b>	<b>U G</b>	<b>3</b>
Emphasis on leadership skills for nutrition and dietetics in health care settings. Prereq: 5189. Not open to students with credit for 645.			
<b>6001</b>	<b>Foundations in Research &amp; Application I</b>	<b>G</b>	<b>1</b>
An evidence based review of current topics in dietetics to support the integration of nutrition informatics, scientific evidence and key trends in healthcare to dietetics practice. Prereq: Enrollment in MedDiet or HthRhSc graduate program. This course is graded S/U.			
<b>6002</b>	<b>Foundations in Research &amp; Application II</b>	<b>G</b>	<b>1</b>
An evidence based review of current topics in dietetics to support the integration of nutrition informatics, scientific evidence and key trends in healthcare to dietetics practice. Prereq: Enrollment in MedDiet or HthRhSc graduate program. This course is graded S/U.			
<b>6003</b>	<b>Foundations in Research &amp; Application III</b>	<b>G</b>	<b>1</b>
An evidence based review of current topics in dietetics to support the integration of nutrition informatics, scientific evidence and key trends in healthcare to dietetics practice. Prereq: Enrollment in MedDiet or HthRhSc graduate program. This course is graded S/U.			
<b>6100</b>	<b>Care and Management of Diabetes Mellitus</b>	<b>G</b>	<b>3</b>
An in depth examination of etiology, epidemiology, and pathophysiology associated with diabetes and disease complications; pharmacological and non-pharmacological treatments; insulin, physical activity and nutritional pattern management; monitoring; symptom management and steps for prevention of secondary complications. Future research and application of evidence based care will be emphasized. Prereq: Biochem or equivalent; or Anatomy and Physio; or HumnNtr 2310, MedDiet 3100, HthRhSc 4530, or equivalent; and Grad standing in MedDiet, HumnNtr, or other health related program.			

6189	<b>Medical Dietetics: Clinical Nutrition Practicum</b>	G	1 - 5
This is an advanced, specialized experience to be completed in addition to- and after- all required experiences in health care systems that use inpatient, outpatient, and foodservice and community-based experiences all to achieve course objectives. Prereq: Enrollment in the MedDiet Grad program. Not open to students with credit for 688.03. Repeatable to a maximum of 9 or hrs or 2 completions. This course is graded S/U.			
6300	<b>Evidence Based Topics in Nutrition &amp; Dietetics</b>	G	3
An in depth examination of the role of nutrients and food components and their impact of body systems and health. Prereq: Grad standing.			
6350	<b>Nutrition Support in Critical Care</b>	G	3
Advanced study of specialized nutrition support in critical care. Prereq: Nutrition therapy or equiv. Not open to students with credit for 856.			
6900	<b>Nutritional Genomics</b>	G	3
An introduction to nutritional genomics and translational medicine for the prevention and treatment of disease. Prereq: A course in basic nutrition, and 2 courses in Science, Biochemistry, or Physiology; or permission of instructor. Not open to students with credit for 745.			

### Medical Laboratory Science

4400	<b>Introduction to the Medical Laboratory Environment</b>	U	1
An introduction to the basic principles and safety in the clinical laboratory environment. Prereq: Admission to Medical Laboratory Science program, or permission of instructor. Concur: 4405.			
4405	<b>Introduction to the Medical Laboratory Environment Laboratory</b>	U	1
An introduction to the practice of basic principles and safety in the clinical laboratory environment. Prereq: Admission to Medical Laboratory Science program, or permission of instructor. Concur: 4400.			
4500	<b>Phlebotomy</b>	U	1
The principles and practice of sample collection as it relates to clinical laboratory testing. Prereq: Admission to Medical Laboratory Science program, or permission of instructor. Concur: 4505.			
4505	<b>Phlebotomy Laboratory</b>	U	1
The practice of sample collection for the clinical laboratory. Prereq: Admission to Medical Laboratory Science program, or permission of instructor. Concur: 4500.			
5000	<b>Medical Laboratory Microbiology I</b>	U G	3
Introduce medical bacteriology in the aspects of fundamental epidemiology, disease transmission routes, clinical correlation of microbial diseases, as well as diagnostic tests to identify commonly encountered and clinically important bacteria. Prereq: Micrbio 4000.01, and admission to Medical Laboratory Science program; or permission of instructor.			
5000E	<b>Medical Laboratory Microbiology I</b>	U G	3
Introduce medical bacteriology in the aspects of fundamental epidemiology, disease transmission routes, clinical correlation of microbial diseases, as well as diagnostic tests to identify commonly encountered and clinically important bacteria. Honors-embedded course includes an infectious disease project. Prereq: Honors standing, Micrbio 4000, and admission to Medical Laboratory Science Program; or permission of instructor.			
5005	<b>Medical Laboratory Microbiology I Laboratory</b>	U G	2
Basic theory and application of clinical laboratory techniques used to identify bacteria pathogenic to humans. Prereq: 4405 and Micrbio 4000, and admission to Medical Laboratory Science Program; or permission of instructor. Concur: MedLbS: 4400. Not open to students with credit for MedTech 500.02.			
5050	<b>Medical Laboratory Hematology</b>	U G	5
Theory and application of clinical laboratory procedures used to identify and evaluate the formed elements of the blood and hemostatic mechanisms in health and disease. Prereq: Enrollment in Medical Laboratory Science program, or permission of instructor.			
5050E	<b>Medical Laboratory Hematology</b>	U G	5
Theory and application of clinical laboratory procedures used to identify and evaluate the formed elements of the blood and hemostatic mechanisms in health and disease. Prereq: Honors standing, and admission to Medical Laboratory Science program; or permission of instructor. Not open to students with credit for MedTech 510.01.			
5055	<b>Medical Laboratory Hematology Laboratory</b>	U G	2
Theory and application of clinical laboratory procedures used to identify and evaluate the formed elements of the blood and hemostatic mechanisms in health and disease. Concur: 4400 and 4405, and admission to Medical Laboratory Science program, or permission of instructor.			

5089	<b>Clinical Practice in Medical Laboratory Science</b>	U G	1 - 10
Application of medical laboratory technique under supervision in clinical laboratories or other non-hospital laboratory settings. Prereq: All courses required in the Medical Laboratory Science Certification curriculum except 5600 and 5350. Repeatable to a maximum of 20 or hrs or 4 completions. This course is graded S/U.			
5100	<b>Medical Laboratory Microbiology II</b>	U G	3
Introduce medical mycology, parasitology, and virology in the aspects of fundamental epidemiology, disease transmission routes, clinical correlation of microbial diseases, as well as diagnostic tests to identify commonly encountered and clinically important viruses, fungi and parasites. Prereq: Admission to Medical Laboratory Science Program, or permission of instructor. Not open to students with credit for MedTech 525.01.			
5105	<b>Medical Laboratory Microbiology II Laboratory</b>	U G	1
The theory and application of clinical laboratory procedures used to identify fungi, parasites, and viruses pathogenic to humans. Prereq: Admission to Medical Laboratory Science Program, or permission of instructor. Concur: 4400 and 4405.			
5150	<b>Medical Laboratory Microscopy</b>	U G	2
Microscopic analysis of urine and other body fluids including correlational pathophysiology. Prereq: Admission to Medical Laboratory Science program, or permission of instructor.			
5155	<b>Medical Laboratory Microscopy Laboratory</b>	U G	1
Microscopic analysis of urine and other body fluids. Prereq: MedLbS 4400, and admission to Medical Laboratory Science program; or permission of instructor. Not open to students with credit for MedTech 570.02.			
5200	<b>Medical Laboratory Immunology</b>	U G	3
Theory, application, and correlation of clinical immunology knowledge and procedures used to evaluate the function of the immune system in health and disease. Prereq: Enrollment in Medical Laboratory Science program, or permission of instructor.			
5200E	<b>Medical Laboratory Immunology</b>	U G	3
Theory, application, and correlation of clinical immunology knowledge and procedures used to evaluate the function of the immune system in health and disease. Prereq: Honors standing, and admission to Medical Laboratory Science program; or permission of instructor.			
5205	<b>Medical Laboratory Immunology Laboratory</b>	U G	1
Theory, application and correlation of clinical immunology knowledge and procedures. Prereq: 4400, and admission to Medical Laboratory Science program; or permission of instructor.			
5250	<b>Medical Laboratory Immuno-hematology</b>	U G	4
The theory and practice of blood banking and transfusion medicine. Prereq: 5000, 5050, or 5200, and Enrollment in Medical Laboratory Science program; or permission of instructor.			
5255	<b>Medical Laboratory Immuno-hematology Laboratory</b>	U G	2
Theory and practice of blood banking and transfusion medicine. Prereq: 4400, 5200, and 5205, and admission to Medical Laboratory Science program; or permission of instructor.			
5300	<b>Medical Laboratory Chemistry</b>	U G	5
Principles in clinical chemistry with an emphasis on analysis and correlation of biochemical parameters with disease. Prereq: Chem 2510 and Biochem 4511; or BioPhrm 3311 and 3312; and enrollment in Medical Laboratory Science program; or permission of instructor.			
5305	<b>Medical Laboratory Chemistry Laboratory</b>	U G	2
Applications of theory in quality control, method selection and evaluation, and diagnostic techniques in the clinical chemistry. Prereq: 4400; and Chem 2510 and Biochem 4511, or BioPhrm 3311; and admission to Medical Laboratory Science program; or permission of instructor.			
5350	<b>Professional Issues in Medical Laboratory Science</b>	U G	3
Theory and application of professional, education, and management issues directed specifically towards Medical Laboratory Science. Prereq: Admission to Medical Laboratory Science program, or permission of instructor. Not open to students with credit for MedTech 620.			
5400	<b>Molecular Techniques in Medical Laboratory Science</b>	U G	2
Theory and clinical applications of molecular techniques used in medical laboratory science. Prereq: 5000, 5050, 5100, and MolGen 4500, and admission to the Medical Laboratory Science Program; or permission of instructor. Prereq or concur: 5250 and 5300.			
5405	<b>Molecular Techniques in Medical Laboratory Science Laboratory</b>	U G	½
Theory and clinical applications of molecular techniques used in medical laboratory science. Prereq or Concur: 5250 and 5300, and enrollment in Medical Laboratory Science Program; or permission of instructor.			

## 318 Medical Laboratory Science

**5600 Interdisciplinary Studies in Medical Laboratory Science** U G 1 - 5

The application of medical laboratory science in interdisciplinary settings.  
Prereq: All Medical Laboratory Science certification track required courses except for MedLbS 5089. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is graded S/U.

**5690 Advanced Topics in Medical Laboratory Science** U G 1 - 5

Introduction to skills and resources necessary to enhance professional development and facilitate professional goal setting.  
Prereq: Enrollment in Medical Laboratory Science program, or permission of instructor.

**5693 Individual Studies** U G 1 - 15

Guided study or individual readings, research, or experiences related to medical laboratory science.  
Prereq: Admission to Medical Laboratory Science program, or permission of instructor.  
Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**5890 Seminar in Medical Laboratory Science** U G 1 - 5

Introduction to the skills and resources necessary to enhance professional development and facilitate professional goal setting.  
Prereq: Admission to Medical Laboratory Science program, or permission of instructor.  
Repeatable to a maximum of 5 cr hrs or 5 completions.

**6885 Medical Laboratory Clinical Teaching Practicum** G 2 - 5

Supervised experience in clinical education.  
Prereq: Admission to Medical Laboratory Science program, or permission of instructor.  
Repeatable to a maximum of 5 cr hrs or 2 completions. This course is graded S/U.

**6890 Medical Laboratory Graduate Seminar** G 2 - 5

Investigation of current topics in medical technology.  
Prereq: Admission to Medical Laboratory Science program, or permission of instructor.  
Repeatable to a maximum of 5 cr hrs or 2 completions. This course is graded S/U.

## Medicine, College of

**2000.21 Introduction to Medicine** U 2

Designed for students interested in a career in medicine, this course will provide an overview of the field (knowledge and skill requirements), information about prerequisites and applying to medical school. Recommended prereq: Soph or Jr standing.  
This course is graded S/U.

**2022 A Day in the Life: Undergraduate Physician Shadowing** U 1

Deciding on whether medicine is the right career choice for someone interested in the health professions is challenging. This course is designed to provide a meaningful preceptorship experience with physicians in various disciplines in order to provide the student with a better understanding of the field. A better understanding of medicine is a crucial part of the application process to med school.  
Prereq: Soph, Jr, or Sr standing. Preference given to those who completed MedColl 2000.21.  
This course is graded S/U.

**2220 Introduction to Biomedical and Healthcare Research** U 1

The course will introduce undergraduates to the scope of research conducted by faculty, post-doctoral associates, medical and graduate students at The Ohio State University College of Medicine (OSUCOM).

**2225 Biomedical and Healthcare Research Journal Club** U 1

The course is intended for undergraduates who wish to become familiar with current peer-reviewed biomedical and healthcare scientific literature. Students will learn to read, analyze, and summarize original scientific research articles.

**3998 Design, Analysis & Dissemination of Biomedical and Healthcare Research** U 3

MedColl 3998 is a collaborative, experiential and data-driven course-based undergraduate research experience (CURE). Students will learn to understand the importance of collaboration and the iterative nature of biomedical and healthcare research.

**4126 Sexual Orientation, Gender Identity, and Health** U 3

This course is an introduction to LGBT health, including a study of demographics, the background of key healthcare disparities/inequities, and concepts of the interaction between society and health of specific populations within the LGBT community.  
Prereq: Soph, Jr, or Sr standing.

**4660E Primary Care Across Countries** U 3

This participatory interdisciplinary seminar course will provide a broad perspective to those interested in various aspects of the delivery of primary care services. Specifically, the course will explore why access to high quality, consistent, and comprehensive primary care is central to achieving Health for All.

**4790 Exploring Medical Care Delivery and Education from a Global View** U 3

The course provides an introduction to medical care delivery and health science education from a global perspective through intensive instruction and participation in a short-term education abroad program to the destination country.

**4998 Undergraduate Thesis** U 1 - 10

The student will plan, complete, and defend an undergraduate honors thesis focused on psychiatry and behavioral health.  
Prereq: Permission of instructor. This course is graded S/U.

**5000 Responsible Conduct of Research & Research Ethics** U G M 1

Within research, ethics is considered to be the safeguard of both the researcher and the participant. This course will examine cases which hold to demonstrate this statement. It will analyze a complex system of policies and regulations that govern human subject research and scientific integrity. This class also satisfies the basic components of Responsible Conduct of Research (RCR) education.  
This course is graded S/U.

**5881 Sustainable Health Care in the Current Climate Crisis** U G M 2

This course will educate students about links between the climate crisis (CC) and health; foster engagement with local leaders addressing the CC; and encourage students to communicate effectively, becoming engaged citizens for sustainable health care. Introductory biology, chemistry, physics, and epidemiology may be helpful prior to enrollment.

**6100 Global Healthcare Innovation** G 1

The course introduces graduate and professional students to the breadth and diversity of global healthcare innovations through guided discussion and case study application.

**6200 Global Health Literacy Practice, Policy and Research** G 3

The course introduces graduate and professional students to health literacy practice, policy, and research across the globe. The course will provide an overview of population-based health literacy definitions and estimates from a global perspective.

**6300 Primary Care Delivery across the Globe** G 3

The course provides a comprehensive overview of the multifaceted aspects of primary care delivery and financing throughout the world. The combined global impact of access to high quality and comprehensive primary care will be explored.

**7100 Teaching and Assessing Professionalism in the Biomedical Sciences** G 3

This course is grounded in three paradigms of modern biomedical professionalism and focuses on designing teaching and assessments necessary for a developmental process that encourages the transformation from lay person to health care professional.  
Prereq: Acceptance into the Master of Arts in Educational Studies, Biomedical Education specialization, or permission of instructor.

**7193 Individual Studies in Emergency Medicine** G 1 - 3

Research on a basic science or clinical issue in Emergency Medicine (under faculty supervision).  
Prereq: Permission of instructor, and good standing in the M.S. program in Medical Sciences.  
Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

**7200 Seminar: Employing Simulation in Medical Education** G 3

This course is an exploration of simulation in competency based medical education. The knowledge, skills and attitudes developed in the course will enable clinical educators to facilitate the use of simulation in competency-based curricula.  
Prereq: Enrollment in the Master of Arts in Educational Studies program, Biomedical Education specialization, or permission of instructor.

**7300 Seminar: Competency-Based Medical Education** G 3

This course is an exploration of the seminal and more recent CBME literature, the process of developing a CBME curriculum and emerging issues related to CBME. The knowledge, skills and attitudes developed in this course should enable clinician educators to participate in and facilitate the development of competency-based curricula.

**7400 Assessment For Competency Based Medical Education** G 3

The knowledge, skills, and attitudes developed in this course will enable clinical educators to effectively design and implement assessments. Learners will make connections between established standards and assessment strategies to measure competency.  
Prereq: Acceptance into the Master of Arts in Educational Studies, Biomedical Education specialization; or permission of instructor.

**7600 Introduction to Medicine** M 0

An introductory course describing curriculum choices and requirements, support services and security procedures for new medical students in the College of Medicine.  
Prereq: Enrollment in the College of Medicine, and first-semester medical student. This course is progress graded (S/U).

**7680 Independent Study in Geriatrics and Aging** G 1 - 2

Opportunity for individualized study in the fields of aging, gerontology, and/or geriatrics. Allows for examination of a social, community, or organizational problem; or medical, public health, social welfare issue; etc. in the context of aging.  
Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

**7690 Graduate Career Independent Study** G 1

Graduate Level independent study working closely with Dr. Klatt on Mindfulness/Resilience/Yoga scholarly projects.  
Prereq: Permission of instructor. This course is graded S/U.

**7693 Individual Studies** M 1 - 16

Special studies in medicine; nature of life processes; foundational science; clinical science; pathophysiology and manifestation of disease. This is a supervised individualized program. Offered all semesters.  
Prereq: Enrollment in MD program, and permission of instructor. Repeatable to a maximum of 32 cr hrs or 2 completions. This course is progress graded (S/U).



<b>7694</b>	<b>Interprofessional Care for the Underserved Patient</b>	<b>G</b>	<b>2</b>
A longitudinal course involving masters of social work, medicine, and pharmacy students in which teams of students will assume longitudinal care of under served patients at the Columbus Free Clinic. This course will help students develop practical competency in the interprofessional delivery of patient-centered longitudinal care, with emphasis on collaborative communication and problem solving. Prereq: Enrollment in the College of medicine, pharmacy, or masters of social work. This course is graded S/U. Cross-listed in Phr.			
<b>7700.04</b>	<b>Interprofessional Practicum in Clinical Care: Aging</b>	<b>G M</b>	<b>2 - 3</b>
Students experience the breadth, scope, and importance of clinical gerontology in an interdisciplinary team setting through leadership and perspectives of academic and community health and social service providers. This course is graded S/U.			
<b>7710</b>	<b>Health Literacy</b>	<b>M</b>	<b>1 - 2</b>
Examine and analyze issues of low health literacy, including populations at risk, research, measurement tools, writing in plain language; health communication techniques; and organizational approaches. Prereq: Grad standing in Health Sciences Professions, Literary Studies Specialization (ASC), Geriatrics Specialization (College of Medicine), or Teaching (College of Education & Human Ecology), or permission of faculty coordinator. This course is progress graded (S/U). Cross-listed in Pharmacy, ArtsSci, Nursing, Medicine, and AlliMed.			
<b>7711</b>	<b>From the Page to the Bedside: Literature for Physicians</b>	<b>M</b>	<b>1</b>
Study of literary works that engage with issues of illness, treatment, and medical ethics. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7762</b>	<b>Clinical Foundations I</b>	<b>M</b>	<b>0 - 22</b>
Study of human development, biology, pathophysiology and behavior in a patient-oriented organ-system interdisciplinary manner. Developmental acquisition of the knowledge, skills and attitudes for an effective patient centered clinical encounter. Prereq: Enrollment in College of Medicine. Repeatable to a maximum of 6 completions. This course is progress graded (S/U).			
<b>7763</b>	<b>Clinical Foundations II</b>	<b>M</b>	<b>2 - 20</b>
Study of human development, biology, pathophysiology and behavior in a patient-oriented organ-system interdisciplinary manner. Developmental acquisition of the knowledge, skills and attitudes for an effective patient centered clinical encounter. Prereq: Enrollment in College of Medicine. Repeatable to a maximum of 6 completions. This course is progress graded (S/U).			
<b>7790</b>	<b>Introduction to Applied Gerontology</b>	<b>G M</b>	<b>2</b>
Provides a foundation for the further study of aging and development of improved aging services. Physiological, cognitive, and social dimensions of aging are considered. Prereq: Not open to students with credit for 790. This course is graded S/U.			
<b>7795</b>	<b>Issues and Trends in Aging</b>	<b>G M</b>	<b>2</b>
Study of national, state and local policy issues related to the older population. Problem-based approach is used to assess impact on current and future practices. Prereq: Not open to students with credit for 795. This course is graded S/U.			
<b>8764</b>	<b>Clinical Applications</b>	<b>M</b>	<b>3 - 20</b>
Foundational and clinical instruction in family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery. Experiential learning in the inpatient, outpatient and community setting. Prereq: Enrollment in College of Medicine. Repeatable to a maximum of 6 completions. This course is progress graded (S/U).			
<b>8864</b>	<b>Advanced Clinical Management</b>	<b>M</b>	<b>3 - 20</b>
Development of the knowledge, skills, attitudes and behaviors that are required in rapid management and chronic care scenarios. Focus on team communications in life threatening situations and in coordination of care. Prereq: Enrollment in College of Medicine. Repeatable to a maximum of 6 completions. This course is progress graded (S/U).			

## Medieval and Renaissance Studies

<b>2211</b>	<b>Medieval Kyoto: Portraits and Landscapes</b>	<b>U</b>	<b>3</b>
Exploration of cultural, political and economic life in Kyoto, Japan from ca. 900-1467 with emphasis on role of imperial court and rising warrior class. Taught in English. Not open to students with credit for Medieval 211. GE culture and ideas and diversity global studies course.			
<b>2215</b>	<b>Gothic Paris: 1100-1300</b>	<b>U</b>	<b>3</b>
The arts, architecture, poetry, history, music, theology, food, and fashion of Paris in 1100-1300, the age of Gothic cathedrals and the birth of the university. Prereq: Not open to students with credit for Medieval 215. GE culture and ideas and diversity global studies course.			
<b>2217</b>	<b>Shakespeare's London</b>	<b>U</b>	<b>3</b>
The history, politics, and culture of London in the age of Shakespeare and the Tudors from the Protestant Reformation to the Great Fire (1666). Prereq: Not open to students with credit for Medieval 217. GE culture and ideas and diversity global studies course.			

<b>2513</b>	<b>Medieval Russia</b>	<b>U</b>	<b>3</b>
The diversity of medieval Russian culture focused on Moscow, Novgorod, and Kiev: religion, society, politics, art, and architecture. Prereq: Not open to students with credit for Medieval 213. GE culture and ideas and diversity global studies course.			
<b>2516</b>	<b>The Medieval Jewish Experience</b>	<b>U</b>	<b>3</b>
A survey of ten centuries of medieval Jewish culture from the rise of Islam to the death of Shabbetai Zvi, the false Messiah (1676). Prereq: Not open to students with credit for Medieval 216, Hebrew 2216 (216), or JewshSt 2516. GE cultures and ideas and diversity global studies course. Cross-listed in Hebrew 2216 and JewshSt 2516.			
<b>2610</b>	<b>Science and Technology in Medieval and Renaissance Culture</b>	<b>U</b>	<b>3</b>
The history of science in the medieval and early modern world, including medicine, alchemy, optics, map-making, city-planning, and technology through images, texts, and material culture. GE cultures and ideas course.			
<b>2618</b>	<b>Travel and Exploration</b>	<b>U</b>	<b>3</b>
Intercultural contact between Europe (Spain, Portugal, and other nations) and the 'New Worlds' is explored through early modern narratives of travel, conquest, shipwrecks, and captivity. Prereq: Not open to students with credit for Medieval 218. GE culture and ideas and diversity global studies course.			
<b>2666</b>	<b>Magic and Witchcraft in the Middle Ages and Renaissance</b>	<b>U</b>	<b>3</b>
A study of the history of witchcraft and magic from 400 to 1700 C.E. within sociological, religious and intellectual contexts. Prereq: Not open to students with credit for Medieval 240. GE culture and ideas and diversity global studies course.			
<b>2888</b>	<b>Holy Heroes: Saints' Lives</b>	<b>U</b>	<b>3</b>
Study of popular medieval narrative genre in its cultural context; development of ideals of sanctity in the lives of martyrs, confessors, holy fools, and ascetics. GE lit course.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>3</b>
Topic varies; special subjects not covered by regular courses. Repeatable to a maximum of 9 cr hrs.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Students may register for individual directed study under this number for work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>4217</b>	<b>Early Modern London: Urban Spaces and Popular Culture</b>	<b>U</b>	<b>3</b>
Students explore the literature, urban space, and popular culture of London from the start of the Protestant Reformation in the 1520s up to the Great Fire of London in 1666 through varied primary sources and recent scholarship.			
<b>4504</b>	<b>The Arthurian Legends</b>	<b>U</b>	<b>3</b>
The medieval tales of King Arthur's court and the Knights of the Round Table in history, myth, literature, art, and music. Prereq: 6 cr hrs in literature. Not open to students with credit for Medieval 504.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Independent study in Medieval and Renaissance culture and civilization. Prereq: 6 cr hrs in Medieval and Renaissance Studies at the 2000 level, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 4</b>
Independent study in Medieval and Renaissance culture and civilization. Prereq: Honors standing, and 6 cr hrs in Medieval and Renaissance Studies at the 2000 level, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Research for Thesis</b>	<b>U</b>	<b>1 - 4</b>
Independent study in Medieval and Renaissance culture and civilization. Prereq: 6 cr hrs in Medieval and Renaissance Studies taken at the 2000 level, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 4</b>
Independent study in Medieval and Renaissance culture and civilization leading to the completion of an undergraduate thesis. Prereq: Honors standing, 6 cr hrs in Medieval and Renaissance Studies at the 2000 level, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>3</b>
Interdisciplinary group studies of selected topics in Medieval and Renaissance culture and civilization. Prereq: 6 cr hrs in MedRen at 2000 level or above. Repeatable to a maximum of 9 cr hrs.			

## 320 Medieval and Renaissance Studies

<b>5610</b>	<b>Manuscript Studies</b>	<b>U G</b>	<b>3</b>
An examination of the development of Latin book production from late antiquity to the Renaissance in the cultural context of the Middle Ages. Prereq: Jr, Sr, or Grad standing. Not open to students with credit for Medieval 610.			
<b>5611</b>	<b>History of the Book Studies</b>	<b>U G</b>	<b>3</b>
A study of the construction and transmission of books during the era of the hand press (c.1450-1800). Prereq: Jr, Sr, or Grad standing, or permission of instructor. Not open to students with credit for Medieval 611.			
<b>5631</b>	<b>Survey of Latin Literature: Medieval and Renaissance</b>	<b>U G</b>	<b>3</b>
Survey of selected authors representative of the Medieval and Renaissance periods of Latin literature with discussion of historical background and critical approaches. Prereq: Latin 1103, or equiv. Not open to students with credit for Medieval 631.			
<b>5695</b>	<b>Advanced Seminar in Medieval and Renaissance Studies</b>	<b>U G</b>	<b>3</b>
Interdisciplinary group studies of selected topics in Medieval and Renaissance culture and civilization, with a focus on research and writing skills. Capstone for MedRen majors. Prereq: 6 credit hours in MedRen at the 2000 level or above. Repeatable to a maximum of 9 cr hrs.			
<b>7899</b>	<b>Medieval and Renaissance Colloquia</b>	<b>G</b>	<b>1</b>
Graduate students completing the CMRS Graduate Certificate and GIS participate in Medieval and Renaissance lecture series events, film series, and discussions with visiting faculty. Prereq: Grad standing. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Students may register for individual directed study under this number for work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			

### Microbial Infection and Immunity

<b>4998</b>	<b>Undergraduate Research in Microbial Infection and Immunity</b>	<b>U</b>	<b>1 - 5</b>
This course provides an opportunity for individualized study in the fields microbial infection and immunity. This research-focused course will allow students the opportunity to participate in a research environment under the supervision of one of the department's faculty members. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Research in Microbial Infection and Immunity</b>	<b>U</b>	<b>1 - 5</b>
This course provides an opportunity for individualized study in the fields microbial infection and immunity. This research-focused course will allow students the opportunity to participate in a research environment under the supervision of one of the department's faculty members. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research in Microbial Infection and Immunity - Thesis</b>	<b>U</b>	<b>1 - 5</b>
This course provides an opportunity for individualized study in the fields microbial infection and immunity. This research-focused course will allow students the opportunity to participate in a research environment under the supervision of one of the department's faculty members. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research in Microbial Infection and Immunity - Thesis</b>	<b>U</b>	<b>1 - 5</b>
This course provides an opportunity for individualized study in the fields microbial infection and immunity. This research-focused course will allow students the opportunity to participate in a research environment under the supervision of one of the department's faculty members. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>5100</b>	<b>Current Topics in Virus-Host Interactions</b>	<b>U G</b>	<b>1</b>
Weekly members of the Viruses and Emerging Pathogens thematic area of the OSU Infectious Disease Institute will present a seminar on their cutting-edge virology research followed by a discussion. Topics will include basic virology, antiviral immunity, vaccines, viral pathogenesis, and virus discovery. Prereq: Micrbio 3704 or 5149, or permission of instructor. Repeatable to a maximum of 3 cr hrs.			
<b>5500</b>	<b>Departmental Seminar - Recent Discoveries in Immunology and Microbial Pathogenesis</b>	<b>U G</b>	<b>1</b>
Students attend the Department of Microbial Infection and Immunity Seminar Series (MISS) and Journal Club. The MISS will host speakers on a biweekly basis throughout the semester. The course will educate students on searching and reading research articles and becoming familiar with the research of the MISS seminar speaker. Students are expected to attend all seminars and journal club sessions. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			

<b>5600</b>	<b>Pathobiology of Cystic Fibrosis</b>	<b>U G</b>	<b>3</b>
The course will involve a combination of lecture presentations from the Instructors followed by student presentations and critical discussion of research papers that represent classic and recent advances in CF pathophysiology/pathobiology aligned with the lecture topic. Course open to graduate and advanced undergraduate students. Prereq: Jr standing or above.			
<b>6600</b>	<b>Pathobiology of Cystic Fibrosis</b>	<b>G</b>	<b>3</b>
The course will involve a combination of lecture presentations from the Instructors followed by student presentations and critical discussion of research papers that represent classic and recent advances in CF pathophysiology/pathobiology aligned with the lecture topic. Prereq: Grad standing.			
<b>7010</b>	<b>Cellular and Molecular Immunology</b>	<b>G</b>	<b>3</b>
Cellular and molecular mechanisms of immune response, cell recognition and communication, molecular biology of cell recognition structures, cytokines, and effector mechanisms. Prereq: Grad standing, or permission of instructor. Cross-listed in Micrbio.			
<b>7400</b>	<b>Current Topics in Virus-Host Interactions</b>	<b>G</b>	<b>1</b>
Weekly members of the Viruses and Emerging Pathogens thematic area of the OSU Infectious Disease Institute will present a seminar on their cutting-edge virology research followed by a discussion. Topics will include basic virology, antiviral immunity, vaccines, viral pathogenesis, and virus discovery. Prereq: BSGP 7000 or equiv., or permission of instructor. Repeatable to a maximum of 3 cr hrs.			
<b>7500</b>	<b>Departmental Seminar - Recent Discoveries in Immunology and Microbial Pathogenesis</b>	<b>G</b>	<b>1</b>
Students attend the Department of Microbial Infection and Immunity Seminar Series (MISS) and Journal Club. The MISS will host speakers on a biweekly basis throughout the semester. The course will educate students on searching and reading research articles and becoming familiar with the research of the MISS seminar speaker. Students are expected to attend all seminars and journal club sessions. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>7998</b>	<b>Graduate Research in Microbial Infection and Immunity</b>	<b>G</b>	<b>1 - 8</b>
This course provides an opportunity for individualized study in the fields microbial infection and immunity. This research-focused course will allow students the opportunity to participate in a research environment under the supervision of one of the department's faculty members. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 3 completions. This course is graded S/U.			
<b>8010</b>	<b>Selected Topics in Advanced Immunology</b>	<b>G</b>	<b>2</b>
Students will gain significant insight into immunological concepts of infectious diseases, transplant, cancer, mucosal immunity, allergy and autoimmunity. Two or three topics discussed in depth, topics alternate yearly. Prereq: 7010. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			

### Microbiology

<b>2000</b>	<b>Introduction to Microbiology Research</b>	<b>U</b>	<b>1½</b>
This course introduces undergraduate students to the process of microbiology research and familiarizes students with ongoing Microbiology Research at The Ohio State University. Prereq: Biology 1113, 1113H, or equiv.			
<b>2100</b>	<b>Wild Yeast: Isolation to Fermentation</b>	<b>U</b>	<b>3</b>
An introduction to yeast biology and microbiological techniques used in fermentation. Students will isolate an unknown yeast from the environment and characterize the growth behavior of the wild strains; use molecular biology and bioinformatics to determine the yeast species they have isolated; use the wild yeast to prepare a fermentation and characterize the finished 'wild' ferment. Prereq: Biology 1110 or 1113, and Chem 1110, 1210, or 1610; or permission of instructor.			
<b>2200</b>	<b>Genome Biology</b>	<b>U</b>	<b>1</b>
DNA sequencing and analysis of bacteriophage genomes. Special emphasis on mycobacteriophage as part of the Howard Hughes Medical Institute National Genomics Research Initiative. Prereq: Biology 1113 with participation in the Howard Hughes Medical Institute National Genomics Research Initiative, or permission of instructor. Cross-listed in Biology 2200.			
<b>3194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of selected topics in microbial and cellular biology. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U			
<b>3704</b>	<b>HIV: From Microbiology to Macrohistory</b>	<b>U</b>	<b>3</b>
This course is an interdisciplinary exploration of HIV/AIDS, tracing the evolution of the virus at both the molecular level and within its global historical context. This course is team-taught by a virologist and a historian. Prereq: or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 3704. Cross-listed in History.			
<b>3798.05</b>	<b>HIV in Context: East Africa</b>	<b>U</b>	<b>4</b>
This course is an interdisciplinary exploration of the real world impact of- and response to HIV/AIDS. Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for History 3798.05. GE historical study and education abroad course. Cross-listed in History.			

## Microbiology 321

<b>4000.01</b>	<b>Basic and Practical Microbiology</b>	<b>U</b>	<b>4</b>
Provides an understanding of microorganisms and their interaction with the human experience. Prereq: 3 cr hrs in Biology. Not open to students with credit for 4000 or 4000.02. GE nat sci bio course.			
<b>4000.02</b>	<b>Basic and Practical Microbiology</b>	<b>U</b>	<b>4</b>
Provides an understanding of microorganisms and their interaction with the human experience. Online/in-person hybrid version of Micrbio 4000.01. Prereq: 3 cr hrs in Biology. Not open to students with credit for 4000 or 4000.01. GE nat sci bio course.			
<b>4100</b>	<b>General Microbiology</b>	<b>U</b>	<b>5</b>
Fundamental principles of microbiology and the characteristics of microorganisms with emphasis on their structure, molecular biology, growth, classification, physiology, ecology, biotechnology, ecology, and applied microbiology. Prereq: Biology 1113 or 1113H. Prereq or concur: Chem 2510.			
<b>4110</b>	<b>Microbial Pathogenesis and Immunobiology</b>	<b>U</b>	<b>3</b>
Provides an overview of microbe-host interactions with an emphasis on virulence mechanisms of bacterial pathogens, host infection routes, immune recognition of microbes, and the cellular and molecular effectors of the host immune system. Prereq: 4000 (509) or 4100 (520). Not open to students with credit for MicrBiol 524.01.			
<b>4120</b>	<b>Microbial Physiology and Diversity</b>	<b>U</b>	<b>3</b>
Principles of microbial growth, metabolism, microbial structure and function, and regulation of microbial metabolism. Prereq: 4100. Prereq or concur: Biochem 4511.			
<b>4130</b>	<b>Microbial Genetics</b>	<b>U</b>	<b>3</b>
Structure, maintenance, expression, and exchange of genetic materials in microbial cells. Prereq: 4100, MolGen 4500, or 4606.			
<b>4140</b>	<b>Molecular Microbiology Laboratory</b>	<b>U</b>	<b>3</b>
Advanced laboratory covering structure, maintenance, expression and exchange of genetic materials in microbial cells and methods in immunobiology. Prereq or concur: Micrbio 4130 (Micrbiol 581.01). Not open to students with credit for Micrbiol 581.02.			
<b>4150</b>	<b>Immunobiology Laboratory</b>	<b>U</b>	<b>3</b>
This course will provide an introduction to the experimental approaches and laboratory methods commonly used in Immunology research. Topic areas include the purification, characterization and applications of antibodies, the characterization and responses of cells and organs of the immune system, and cell culture techniques for the use of eukaryotic cells in immunology research. Prereq: 4110, or 5122, or permission of the Instructor.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of selected topics in microbial and cellular biology. Outlined by instructor to meet individual student's needs. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Study of selected topics in microbial and cellular biology. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4591S</b>	<b>DNA Finger Printing Workshops</b>	<b>U</b>	<b>1</b>
A service learning course whereby undergraduates mentor high school students in molecular biology workshops. Undergraduates present workshops in Columbus Public Schools. Sp Sem. Prereq: MolGen 4500 (500) or 4606 (606). Repeatable to a maximum of 3 cr hrs. This course is graded S/U. Cross-listed in MolGen and Biochem.			
<b>4797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 18</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of department. Repeatable to a maximum of 36 cr hrs or 2 completions. This course is progress graded (S/U).			
<b>4798.01</b>	<b>Study Tour at a Domestic Institution</b>	<b>U</b>	<b>1 - 18</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of department. Repeatable to a maximum of 36 cr hrs or 2 completions. This course is progress graded (S/U).			
<b>4798.02</b>	<b>Study Tour at a Foreign Institution</b>	<b>U</b>	<b>1 - 18</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of department. Repeatable to a maximum of 36 cr hrs or 2 completions. This course is progress graded (S/U).			
<b>4998</b>	<b>Undergraduate Research in Microbiology</b>	<b>U</b>	<b>1 - 5</b>
Laboratory and bioinformatics based research in all areas of microbiology. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 8 completions. This course is graded S/U.			

<b>4998H</b>	<b>Honors Research in Microbiology</b>	<b>U</b>	<b>1 - 5</b>
Laboratory and bioinformatics based research in all areas of microbiology. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 8 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research in Microbiology-Thesis</b>	<b>U</b>	<b>1 - 5</b>
Laboratory and bioinformatics based research in all areas of microbiology. Thesis. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Research in Microbiology-Thesis</b>	<b>U</b>	<b>1 - 5</b>
Laboratory and bioinformatics based research culminating in an Honors thesis. Prereq: Honors standing, and Jr or Sr standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U.			
<b>5122</b>	<b>Immunology</b>	<b>U G</b>	<b>3</b>
Cellular and molecular properties of the immune system. Prereq: 4000 or 4110.			
<b>5129</b>	<b>Cellular and Molecular Biology of Pathogenic Eukaryotes</b>	<b>U G</b>	<b>3</b>
Cellular biology and molecular aspects of parasitism. Prereq: 4100, or permission of instructor. Not open to students with credit for MicrBiol 629.			
<b>5147</b>	<b>Eukaryotic Pathogens</b>	<b>U G</b>	<b>3</b>
Presentations will cover the medically important fungal and parasite pathogens and the virulence mechanisms employed at the host-pathogen interaction to overcome host defenses. Current and potential therapeutic strategies will also be discussed. Prereq: 4100 (520), or permission of instructor. Not open to students with credit for MicrBiol 647.			
<b>5149</b>	<b>Introductory Virology</b>	<b>U G</b>	<b>3</b>
Basic principles of virology with discussion of structures; virus-host cell interactions, detection, production, and control; animal bacterial, insect, and plant viruses used as examples. Prereq: 4100 (520). Not open to students with credit for MicrBiol 649.			
<b>5155</b>	<b>Environmental Microbiology</b>	<b>U G</b>	<b>3</b>
The role of microorganisms and underlying biological principles in elemental cycles and degradation of natural and man-made compounds. Prereq: Micrbio 4000 (Micrbiol 509) or 4100 (520). Not open to students with credit for 665.			
<b>5160</b>	<b>Geomicrobiology</b>	<b>U G</b>	<b>3</b>
The role of microorganisms in shaping our environment through mineralogical and geochemical processes at both local and global scales, in the present day and over geologic time periods. Prereq: Sr or Grad standing in School of Earth Sciences, Department of Microbiology, Department of Civil, Environmental, and Geodetic Engineering, or School of Environment and Natural Resources. Not open to students with credit for EarthSc 5160. Cross-listed in EarthSc.			
<b>5161</b>	<b>Introduction to Computational Genomics</b>	<b>U G</b>	<b>3</b>
Application of computational tools to the analysis of microbial genomes and their gene products. Recommended background in basic molecular biology, genetics or biochemistry.			
<b>5270</b>	<b>Antibiotics and Microbial Natural Products</b>	<b>U G</b>	<b>3</b>
Microorganisms are responsible for producing a vast array of chemically diverse natural product small molecules. The unique biological and chemical properties of many of these small molecules have afforded many valuable applications throughout medicine, agriculture, and biotechnology. Here, we cover the biology behind the chemistry of these molecules and their role in human medicine. Prereq: A grade of C- or above in 4120, Biochem 5614, or Phr 4000; or Grad standing; or permission of instructor. Not open to students with credit for Phr 5270. Cross-listed in Phr.			
<b>5536</b>	<b>Food Microbiology Lecture</b>	<b>U G</b>	<b>3</b>
Microorganisms in relation to the production, processing, and handling of food with emphasis on food transmitted pathogens and minimizing public health risks. Prereq: 4000 (509), 4100 (520), or permission of instructor. Not open to students with credit for MicrBiol 636.01 or FDSCTE 636.01. Cross-listed in FDSCTE 5536.			
<b>5546</b>	<b>Food Microbiology Laboratory</b>	<b>U G</b>	<b>3</b>
Laboratory training for determining the microbiological safety and quality of food with emphasis on handling pathogens and observing analyst's safety. Prereq: 5536 (636.01) or FdScTe 5536 (636.01). Not open to students with credit for 636.02 or FdScTe 636.02. Cross-listed in FdScTe 5546.			
<b>5800</b>	<b>Organelle Biology</b>	<b>U G</b>	<b>2</b>
Structure and function of plastids and mitochondria, apicoplasts and hydrogenosomes. Prereq: MolGen 4500 (500), 4500E, or 4606 (606), or permission of instructor. Cross-listed in MolGen.			
<b>6010</b>	<b>Principles of Microbiology</b>	<b>G</b>	<b>2</b>
Principles of Microbiology: research practices, conduct and expectations for graduate students, and an introduction to microbiology through landmark papers in the field. Prereq: Grad standing, or permission of instructor.			

## 322 Microbiology

<b>6020</b>	<b>Microbial Physiology and Biochemistry</b>	<b>G</b>	<b>3</b>
Principles of microbial growth, metabolism, microbial structure and function, regulation of microbial metabolism and an introduction to the diversity of microorganisms. Prereq: Grad standing, or permission of instructor. Not open to students with credit for MicrBiol 661 or 720.			
<b>6080</b>	<b>Advanced Microbial Genetics</b>	<b>G</b>	<b>3</b>
Molecular mechanisms of gene regulation and gene transfer in prokaryotes. Prereq: 4130, or permission of instructor. Not open to students with credit for MicrBiol 680.			
<b>6155</b>	<b>Topics in Microbiome Sciences</b>	<b>G</b>	<b>3</b>
This 'Topics in Microbiome Sciences' course seeks to provide foundational knowledge on select topics relevant for studying microbes in an ecosystem context for environments ranging from the oceans and soils to the human and bioreactors.			
<b>6789</b>	<b>Research Principles and Techniques in Microbiology</b>	<b>G</b>	<b>1 - 8</b>
Research principles and techniques in microbiology for MS and PhD students in microbiology: laboratory rotations. Prereq: Permission of instructor. Repeatable to a maximum of 25 or hrs or 5 completions. This course is graded S/U.			
<b>6790</b>	<b>Scientific Writing</b>	<b>G</b>	<b>2</b>
A successful researcher is someone who knows both how to do their science, and also how to effectively communicate their findings through the written and spoken word. The purpose of this course is to introduce students to the processes involved in professional or scholarly publication. Prereq: Permission of instructor. Not open to students with credit for Chem 6790. Cross-listed in Chem.			
<b>7010</b>	<b>Cellular and Molecular Immunology</b>	<b>G</b>	<b>3</b>
Cellular and molecular mechanisms of immune response, cell recognition and communication, molecular biology of cell recognition structures, cytokines, and effector mechanisms. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 701 or MVIMG 7010 (701). Cross-listed in MVIMG.			
<b>7020</b>	<b>Physiology Meets Pathogenesis</b>	<b>G</b>	<b>2</b>
The physiological basis for growth and virulence of microbes in the host. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 702.			
<b>7060</b>	<b>Advanced Topics in Molecular Microbiology</b>	<b>G</b>	<b>2</b>
Specialized metabolic pathways, regulation and control mechanisms, and bacterial biochemistry. Prereq: 6020, or permission of instructor. Not open to students with credit for 760.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Enrollment in non-thesis master's program and written permission of instructor. Not open to thesis MS candidates or PhD candidates. Outlined by instructor to meet individual student's needs. Prereq: Permission of instructor. Not open to Plan A thesis MS or PhD candidates. Repeatable to a maximum of 30 or hrs or 6 completions. This course is graded S/U.			
<b>7536</b>	<b>Advanced Food Microbiology I</b>	<b>G</b>	<b>2</b>
Food borne microbes of significance to health and industrial applications, metabolic pathways enabling these organisms survival in the environment and hosts, approaches for studying food-borne microorganisms. Prereq: 5536 (Micrbiol 636.01) or FdScTe 5536 (636.01), and MicrBio 4100 (Micrbiol 520); or permission of instructor. Not open to students with credit for Micrbiol 736 or FdScTe 7536 (736). Cross-listed in FdScTe.			
<b>7600</b>	<b>First Year Student Orientation</b>	<b>G</b>	<b>1</b>
Orientation for first-year students in Microbiology and partner graduate programs; lectures on topics important for successful graduate experience; training in presenting scientific work; training in research ethics. Prereq: Not open to students with credit for OSBP 7600 (760), MCDBio 7600, MolGen 7600, or Biophys 7600. This course is graded S/U. Cross-listed in Biophys, MCDBio, MolGen, and OSBP.			
<b>7724</b>	<b>Molecular Pathogenesis</b>	<b>G</b>	<b>3</b>
In-depth presentation and discussion of the molecular and cellular mechanisms of pathogenesis, emphasizing current research in the field. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 724 or IBGP 7240 (724). Cross-listed in IBGP 7240.			
<b>7899</b>	<b>Microbiology Colloquium</b>	<b>G</b>	<b>1</b>
Microbiology Colloquium. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>7998</b>	<b>Research in Microbiology</b>	<b>G</b>	<b>1 - 8</b>
Research in microbiology for graduate students prior to completing the Candidacy Examination. Prereq: Permission of instructor. Not open to students who have passed the Candidacy Examination. Repeatable to a maximum of 60 or hrs or 12 completions. This course is graded S/U.			

<b>7999</b>	<b>Research in Microbiology MS Thesis</b>	<b>G</b>	<b>1 - 8</b>
Research in Microbiology toward completion of a MS thesis. Prereq: Permission of instructor. Repeatable to a maximum of 24 or hrs or 3 completions. This course is graded S/U.			
<b>8050</b>	<b>The RNA World</b>	<b>G</b>	<b>2</b>
Evolution, structure and function of RNA with topics including RNA catalysis, RNA editing and modification, ribosomes, ribozymes, tRNA, telomerase, tmRNA, and alternative translation strategies. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 850.			
<b>8161</b>	<b>Microbiome Informatics</b>	<b>G</b>	<b>3</b>
Microbes are major players across diverse ecosystems including humans, soils, and the oceans. Through concept-introducing lectures, hands-on practical exercises and a semester-long group research project, this course will introduce the student to modern approaches for interpreting sequence datasets to improve understanding of microbes and their viruses in complex communities. Prereq: 5161, 6155, or permission of instructor.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Selected topics in microbiology outlined by instructor to meet individual student's needs. Prereq: Permission of instructor. Not open to MS candidates. Repeatable to a maximum of 30 or hrs or 6 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Group work on special topics in microbial or cellular biology. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.			
<b>8899</b>	<b>Seminar in Microbiology</b>	<b>G</b>	<b>1</b>
Seminar in Microbiology. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8999</b>	<b>Research in Microbiology</b>	<b>G</b>	<b>1 - 8</b>
Research for doctoral dissertation only. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

## Military Science

<b>1100.01</b>	<b>Boot Camp Style Physical Fitness Training</b>	<b>U</b>	<b>1</b>
Introduction to U.S. Army "Boot Camp" style physical fitness training. Teamwork and motivation combine with U.S. Army instructors to generate tough, non-nonsense, non-stop mental and physical training. Au, Sp Sems. Prereq: Students must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity. Repeatable to a maximum of 6 or hrs. This course is graded S/U.			
<b>1100.02</b>	<b>Basic Mountaineering Course</b>	<b>U</b>	<b>1</b>
Training in the fundamental knowledge and skills required to successfully conduct basic U.S. Army mountaineering and rappelling. Students must sign waivers provided by the OSU Area Recreation Center (ARC) and the U.S. Army Cadet Command. Au, Sp Sems. Prereq: Students must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, students must sign waivers provided by the OSU Area Recreation Center (ARC) and the U.S. Army Cadet Command. Repeatable to a maximum of 6 or hrs. This course is graded S/U.			
<b>1101</b>	<b>Introduction to the Army and Critical Thinking</b>	<b>U</b>	<b>1</b>
Introduction to the personal challenges and competencies that are critical for effective leadership. Students learn how developing time and stress management skills, and physical fitness relate to leadership and the Army Profession. No military obligation is required. This course is open to all OSU students. Prereq: All Cadets enrolled in a Military Science course must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity including: marching, laboratory, and field training exercises.			
<b>1102</b>	<b>Introduction to the Profession of Arms</b>	<b>U</b>	<b>1</b>
The organization and branches of the Army, basic military skills, and fundamentals of leadership. Students explore dimensions of leadership values, attributes, skills, and actions in the context of Squad level tactics. No military obligation is required. This course is open to all OSU students. Prereq: All Cadets enrolled in a Military Science course must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity including: marching, laboratory, and field training.			
<b>2001</b>	<b>Leadership and Decision Making</b>	<b>U</b>	<b>2</b>
This course is designed to develop individual leadership skills and inspire self-confidence through experiential learning activities, using critical reasoning and problem solving skills, while applying communication and conflict resolution skills. Prereq: All Cadets enrolled in Military Science courses must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity including: physical fitness training, laboratory, and field exercise training.			

<b>2002</b>	<b>Army Doctrine and Team Development</b>	<b>U</b>	<b>2</b>
The course places emphasis on teamwork in developing effective leadership skills, self confidence, critical reasoning, problem solving skills, and applying communication and conflict resolution skills during training exercises. Sp Sem. Prereq: All students are eligible for the lecture portion of Military Science courses, however, students who wish to participate in any Army ROTC physical activity including: physical fitness training, laboratory, and field training exercise, must have a physician complete a Department of the Army Form 345-R, Medical Fitness Statement prior to participating in the physically demanding portions.			
<b>3001</b>	<b>Training Management and the Warfighting Functions</b>	<b>U</b>	<b>3</b>
This is an academically challenging course where students will study, practice, and apply the fundamentals of Army leadership, Officership, Army values and ethics, personal development, and small unit tactics at the team and squad level. Prereq or concur: 2002, or permission of instructor.			
<b>3002</b>	<b>Applied Leadership in Small Unit Operations</b>	<b>U</b>	<b>3</b>
Emphasis on leadership, planning, coordinating, navigating, motivating and leading a team or squad in execution of a tactical mission during a classroom Practical Exercise, a Leadership Lab, or a Situational Training Exercise in a field environment. Prereq: 3001, or permission of instructor. All Cadets enrolled in Military Science course must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity including: marching, laboratory, and field exercise training.			
<b>4001</b>	<b>The Army Officer</b>	<b>U</b>	<b>3</b>
Practical application of adaptive leadership that transitions the focus of student learning from being trained, mentored and evaluated as an MS III Cadet to learning how to train, mentor and evaluate underclass Cadets. Prereq: 3002, or permission of chairman. All Cadets enrolled in a Military Science course must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity including: marching, laboratory, and field training exercises.			
<b>4002</b>	<b>Company Grade Leadership</b>	<b>U</b>	<b>3</b>
Exploration of the dynamics of leading in the complex situations of current military operations. Students will examine the differences in customs, military law, principles of war, and rules of engagement in the face of international terrorism. Prereq: 4001, or permission of chairman. All Cadets enrolled in a Military Science course must have a physician complete a Department of the Army DA Form 345-R, Medical Fitness Statement for Enrollment in Basic Course, Senior ROTC, in order to participate in any Army ROTC physical activity including: physical training, laboratory and field training exercises.			
<b>4193.01</b>	<b>Military Science Individual Studies</b>	<b>U</b>	<b>1</b>
This course is for Army ROTC Scholarship Cadets who have completed all Military Science courses required for commissioning but who still need to enroll in other university courses for graduation. Cadets must confirm with the department Scholarships and Admissions Officer that they are designated as an MS 5 Cadet and will continue to receive their Army Scholarship. Prereq: 4002, and permission of instructor. Not open to students with credit for 4193. This course is graded S/U.			
<b>4193.02</b>	<b>Cadet Advance Camp</b>	<b>U</b>	<b>1</b>
This is a one credit-hour course to prepare Cadets for Cadet Advance Camp. Course is not repeatable. Prereq or concur: 3001.			
<b>4193.03</b>	<b>Review of Army Literature</b>	<b>U</b>	<b>1</b>
Cadets will study a topic based on the recommended reading list from U.S. Army Cadet Command. Cadets also have the option of choosing an article from a recent journal of The US Army War College Quarterly-Parameters. The journal can be downloaded from the web. Selected readings from Cadet Command or Parameters must be reviewed with the instructor. A term paper is due the week of ROTC Final exams. Prereq: 4002, and permission of instructor. This course is graded S/U.			
<b>Modern Greek</b>			
<b>1101</b>	<b>Elementary Modern Greek</b>	<b>U</b>	<b>5</b>
Introduces students to the language, covering the basic skills of reading, understanding and writing (Autumn semester). Not open to native speakers, or to students with 3 or more years of study in high school, except by permission of instructor. Prereq: Not open to students with credit for 102. This course is available for EM credit. GE for lang course.			
<b>1102</b>	<b>Intermediate Modern Greek I</b>	<b>U</b>	<b>5</b>
Offers intensive study of grammar and syntax, with extensive oral and written practice (Spring semester). Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1101. Not open to students with credit for 103. This course is available for EM credit. GE for lang course.			
<b>1103</b>	<b>Intermediate Modern Greek II</b>	<b>U</b>	<b>3</b>
Continues the 1101-1102 sequence. The course helps students expand their vocabulary and improve their fluency in speaking the language (Autumn only). Not open to native speakers of this language through regular course enrollment or EM credit . Prereq: 1102. Not open to students with credit for 104. This course is available for EM credit. GE for lang course.			

<b>2000</b>	<b>Athens: The Modern City</b>	<b>U</b>	<b>3</b>
The history and culture of modern Athens. The way events such as wars and migration transformed the urban fabric of the city. Prereq: Not open to students with credit for 200. GE cultures and ideas and diversity global studies course.			
<b>2100</b>	<b>Greece and Beyond: The Crossing of Borders Through Film</b>	<b>U</b>	<b>3</b>
Examines cross-cultural encounters between the Greeks and other peoples as depicted in film. GE culture and ideas and diversity global studies course.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual studies. Prereq: 1003 or equiv, or permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Topics in Modern Greek studies. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 9 completions.			
<b>2240</b>	<b>Travels to Greece: The Search for a Cultural Ideal</b>	<b>U</b>	<b>3</b>
Starting in antiquity and ending in today's mass tourism and global migration, the course will introduce students to the phenomenon of travels to Greece. It will examine the reasons people have gone to Greece over the ages and why they have turned Greece into travel ideal. GE cultures and ideas course.			
<b>2367</b>	<b>Reading and Writing About Issues in Greek-American Society and Culture</b>	<b>U</b>	<b>3</b>
Exploration of representative features of Greek-American culture and reflection on the social diversity in the United States. Prereq: English 110, 111 or equiv. Soph standing. Not open to students with credit for 367. GE writing and comm course: level 2 and diversity soc div in the US course.			
<b>2410</b>	<b>Culture of Contemporary Greece</b>	<b>U</b>	<b>3</b>
A general survey of socio-cultural trends and issues in modern Greece through close analysis of literature and the other arts. Prereq: Not open to students with credit for 241. GE cultures and ideas and diversity global studies course.			
<b>2680</b>	<b>Folklore of Contemporary Greece</b>	<b>U</b>	<b>3</b>
A general survey of socio-cultural trends and issues in modern Greece through close examination of ethnographies and other folk expressions. Prereq: Not open to students with credit for 268. GE VPA and diversity global studies course.			
<b>3570</b>	<b>CLLC Radio</b>	<b>U</b>	<b>3</b>
Student partners prepare 3 target language broadcasts, each 1 hour in length. Broadcasts stream live over the Internet, then become podcast for public use. Student "DJs" conduct target language research on radio broadcast history and at least 15 thematic topics and related music that interests them. Students choose their music and content with approval and guidelines, then produce scripts. Prereq: Permission of instructor.			
<b>3710</b>	<b>Modern Greek Literature in Translation</b>	<b>U</b>	<b>3</b>
Review of the Modern Greek literary tradition of the last two centuries through representative works and from a theoretical perspective. Prereq: Jr or Sr standing. Not open to students with credit for 371. GE lit and diversity global studies course.			
<b>4001</b>	<b>Advanced Modern Greek I</b>	<b>U</b>	<b>3</b>
Introduces journalism, literary prose, and media. Students practice discussion and composition.			
<b>4002</b>	<b>Advanced Modern Greek II</b>	<b>U</b>	<b>3</b>
Completes the language sequence. Students develop translation skills and continue practicing conversation and composition. Prereq: 4001. Not open to students with credit for 402.			
<b>4998</b>	<b>Research</b>	<b>U</b>	<b>1 - 3</b>
A program of study arranged for each student. Prereq: Sr standing, and permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 3</b>
A program of study arranged for each student. Prereq: Honors standing, and Sr standing, and permission of instructor. Repeatable to a maximum of 9 or hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 6</b>
A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in Modern Greek. Prereq: Jr standing or above, and enrollment in Modern Greek Major; or permission of instructor or department. Repeatable to a maximum of 18 or hrs or 3 completions. This course is graded S/U.			

## 324 Modern Greek

**4999H Honors Thesis Research** U 1 - 6

A program of study leading to the writing of a thesis and an oral defense that will integrate the experience of earlier courses in Modern Greek.

Prereq: Honors standing, Jr standing or above, and enrollment in Modern Greek Major; or permission of instructor or department. Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.

**5000 Modern Greek Language and Literature** U G 3

Literary texts illustrating Greek culture are the basis for discussion and exercises in vocabulary expansion, grammar, syntax, prose composition, and aural comprehension.

Au, Sp Sems. Prereq: 4002 (402), or grad standing; or permission of instructor.

**5193 Individual Studies** U G 1 - 3

Individual studies.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 3

Group studies.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.

**5797 Study at a Foreign Institution** U G 1 - 9

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

Prereq: Permission of dept chairperson. Repeatable to a maximum of 27 cr hrs or 27 completions. This course is progress graded.

**8999 Dissertation Research in Modern Greek** G 1 - 3

Research for dissertation purposes only.

Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

## Molecular Genetics

**1101 Introduction to Plant Biology: Plants, People, and the Environment** U 5

Plants and their relationships to humans and the biosphere: plant structure and function, growth and development; plant genetics and biotechnology; plant diversity and evolution; practical and economic uses of plants.

Prereq: Not open to students with credit for Biology 1101 (101), 1113 (113), 1113H (115H), 1114 (114), 1114H (116H), PlntBio 101, or 102. This course is available for EM credit. GE nat sci bio course. NS Admis Cond course.

**2220H Introduction to Molecular Life Sciences: Research Opportunities and Career Options** U 1

Faculty presentations and facility tours to introduce first- and second- year students to research opportunities in molecular life sciences.

Prereq: Honors standing, and Biology 1101 (101), 1113 (113), or 1113H (115H), and 3 additional cr hrs in Biological Sciences; or permission of instructor. Not open to students with credit for 220H.

**2690 Genes and Society** U 3

This team taught, interdisciplinary course (crosslisted as PHILOS 2690) provide science-based exposure to topics in classical and modern genetics but with an emphasis on social and ethical issues. Together we will discuss what genes are, and how they work, and how your genome influences traits and behaviors in the context of social beliefs and philosophy.

Prereq: Not open to students with credit for Philos 2690. Cross-listed in Philos.

**3300 General Plant Biology** U 3

Plant structure and function; growth and development; diversity, reproduction, and evolution of lower and flowering plants; people, the biosphere, and plant diversity.

Prereq: Biology 1101 (101), 1113 (113), or 1113H (115H). Not open to students with credit for PlntBio 300 or HCS 300. GE nat sci bio course.

**3436 Introductory Plant Physiology** U 3

Topics in plant physiology at the introductory level: diffusion, transpiration, water stress, translocation, photosynthesis, plant growth hormones, tropisms, flowering, and fruit development.

Prereq: Biology 1113 (133), 1113H (115H), 1114 (114), 1114H (116H), and 6 cr hrs in Chem. Not open to students with credit for PlntBio 436, 630 or 631.

**4500.01 General Genetics** U 3

The principles of genetics, including molecular genetics, transmission genetics of prokaryotes and eukaryotes, developmental and non-chromosomal genetics, recombinant DNA and genomics, and the genetics and evolution of populations. Taught in person.

Prereq: Biology 1101, 1113, or 1113H, and 3 additional sem cr hrs in Biological Sciences. Not open to students with credit for 4500, 4500.02, or 4606.

**4500.02 General Genetics** U 3

The principles of genetics, including molecular genetics, transmission genetics of prokaryotes and eukaryotes, developmental and non-chromosomal genetics, recombinant DNA and genomics, and the genetics and evolution of populations. Taught online.

Prereq: Biology 1101, 1113, or 1113H, and 3 additional sem cr hrs in Biological Sciences. Not open to students with credit for 4500, 4500.01, or 4606.

**4500E General Genetics** U 4

The principles of genetics, including molecular genetics, transmission genetics of prokaryotes and eukaryotes, developmental and non-chromosomal genetics, recombinant DNA and genomics, and the genetics and evolution of populations.

Prereq: Biology 1101 (101), 1113 (113), or 1113H (115H), and 3 additional cr hrs in the Biological Sciences. Not open to students with credit for MolGen 4606 (605 and 606), 500, or 500H.

**4501 General Genetics Laboratory** U 1

MolGen 4501 Laboratory complements the MolGen 4500 lecture course. It provides a laboratory experiences in a wide range of molecular genetic laboratory techniques and approaches, and utilization of relevant genetic model systems.

Prereq or concur: 4500 or 4500E, or permission of instructor. Not open to students with credit for 5601 (601) or 5602 (602).

**4502 Expanded General Genetics Laboratory** U 2

Complements MolGen 4500. In-depth laboratory experiences in a wide range of molecular genetic laboratory techniques and approaches, and utilization of relevant genetic model systems.

Prereq or concur: 4500 or 4500E, or permission of instructor. Not open for students with credit for 4501, 5601 (601), or 5602 (602).

**4503 Molecular Genetics Writing Project** U 1

Practice in searching, reading, and analyzing literature in molecular genetics, and in written and oral presentation.

Prereq: 4500 or 4606, and permission of instructor.

**4591S DNA Fingerprinting Workshops in Columbus Public Schools** U 1

A service learning course whereby undergraduates mentor high school students in molecular biology workshops.

Prereq: MolGen 4500 (500) or 4606 (606). Repeatable to a maximum of 3 cr hrs. This course is graded S/U. Cross-listed in Biochem and MicrBio.

**4606 Molecular Genetics** U 4

A comprehensive genetics course for majors covering transmission and molecular genetics; DNA replication, repair and mutation; transcription and translation; analysis and manipulation of genes at the molecular level.

Prereq: Biology 1113 (113), 1113H (115H), 1114 (114), 1114H (116H), or Chem 1210 (121) or equiv, or permission of instructor. Not open to students with credit for 605 or 606; or 4500 (500) unless waived by instructor.

**4700 Molecular Cell and Developmental Biology** U 3

A genetics-based introduction to the structure and function of cells and the early development of invertebrates and vertebrates, with a special focus on the molecular mechanisms underpinning cellular biology and development.

Prereq: 4500 or 4606, or permission of instructor. Not open to students with grades of C- or above in 5607 and 5608, except with permission of instructor/major advisor.

**4703 Human Genetics** U 3

This course covers principles of human genetics, including mapping and identification of disease genes, animal models, genetic testing and gene therapy, with a focus on reading the primary scientific literature.

Prereq: A grade of C- or above in 4500 or 4606, or permission of instructor. Not open to students with credit for 5733.

**4998 Undergraduate Research in Molecular Genetics** U 1 - 5

Undergraduate research in molecular genetics.

Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 8 completions. This course is graded S/U.

**4998H Undergraduate Research in Molecular Genetics** U 1 - 5

Undergraduate research in molecular genetics.

Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 8 completions. This course is graded S/U.

**4999 Thesis Research in Molecular Genetics** U 1 - 5

A program of reading and research leading to a senior thesis.

Prereq: Sr standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U.

**4999H Thesis Research in Molecular Genetics** U 1 - 5

A program of reading and research leading to a senior honors thesis.

Prereq: Honors standing, and Sr standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U.

**5193 Individual Studies** U G 1 - 3

Problem may be selected in the fields of molecular genetics, genomics, cell biology, developmental biology and plant sciences.

Prereq: at least 10 credit hours in biological sciences and permission of instructor. Repeatable to a maximum of 10 cr hrs or 4 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 3

Group study of special topics in the fields of molecular genetics, genomics, cell biology, developmental biology, and plant sciences.

Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.

<b>5300</b>	<b>Cancer Genetics</b>	<b>U G</b>	<b>3</b>
Students will learn about the genetic evolution of human cancer. Specifically, the hallmarks of cellular transformation and tumor progression will be discussed. Students will be introduced to modern approaches aimed at targeting genetic aberrations in cancer cells. Includes hands-on training in the use of online databases of cancer genetics. Prereq: A grade of C- or above in 4606 or 4500; or Grad standing.			
<b>5601</b>	<b>Eukaryotic Molecular Genetics Lab</b>	<b>U G</b>	<b>3 - 4</b>
Current laboratory techniques used in the genetic, cellular, and molecular analyses of yeast, <i>Drosophila</i> , and other model systems. Prereq: 4500 or 4606, or permission of instructor.			
<b>5602</b>	<b>Eukaryotic Cell and Developmental Biology Laboratory</b>	<b>U G</b>	<b>3 - 4</b>
Laboratory course emphasizing techniques and methods central to cell and developmental biology of eukaryotes. Prereq: 4500 or 4606; or permission of instructor.			
<b>5607</b>	<b>Cell Biology</b>	<b>U G</b>	<b>3</b>
Analysis of the structure and function of animal and plant cells and their components, stressing molecular genetic and biochemical approaches. Prereq: 4500 (500), 4500E, or 4606 (606). Not open to students with credit for 607, 607H, 5607E.			
<b>5607E</b>	<b>Cell Biology</b>	<b>U G</b>	<b>4</b>
Analysis of the structure and function of animal and plant cells and their components, stressing molecular genetic and biochemical approaches. Embedded Honors includes a recitation that explores cell biology topics from the primary literature. Prereq: 4500 (500) or 4606 (606). Not open to students with credit for 5607 (607) or 5607H (607H).			
<b>5608</b>	<b>Genes and Development</b>	<b>U G</b>	<b>3</b>
Analysis of animal and plant development using modern genetic approaches. Prereq: 4500 (500), 4500E, or 4606 (606). Not open to students with credit for 5608E or 608.			
<b>5608E</b>	<b>Genes and Development</b>	<b>U G</b>	<b>4</b>
Analysis of animal and plant development using modern genetic approaches. Honors Embedded includes a faculty led recitation that explores developmental biology topics from the primary literature. Prereq: Honors standing, and 4500 (500) or 4606 (606); or permission of instructor. Not open to students with credit for 4608 (608).			
<b>5623</b>	<b>Genetics and Genomics</b>	<b>U G</b>	<b>2</b>
A survey and discussion of genomic studies applied to fungal, animal, or plants systems. Prereq: 4500 (500), 4606 (606), 5607 (607), or 5608 (608), or Grad standing. Not open to students with credit for PlntBio 623.			
<b>5630</b>	<b>Plant Physiology</b>	<b>U G</b>	<b>3</b>
Advanced study of plant physiology; regulation of plant growth and development, hormones, and stress physiology. Prereq: 3300, 4500 (500), 4606 (606), PlntBio 300, HCS 300, Biology 1114 (114), 1114H (116H), or permission of instructor. Not open to students with credit for PlntBio 630 or 631.			
<b>5632</b>	<b>Insect Molecular Genetics</b>	<b>U G</b>	<b>2</b>
Structure, genetics, and methodology of insect genes and genomes. Prereq: 4500 (500) or 4606 (606). Not open to students with credit for 632 or Entomol 632.			
<b>5643</b>	<b>Plant Anatomy</b>	<b>U G</b>	<b>3</b>
The structure, function, and development of cells, tissues, and organs of vascular plants. Prereq: 3300, Biology 1114 (114), 1114H (116H), or PlntBio 300, and 10 cr hrs in Life Sciences; or permission of instructor. Not open to students with credit for PlntBio 643			
<b>5645</b>	<b>Quantitative, Population, and Evolutionary Genetics</b>	<b>U G</b>	<b>2</b>
The genetics of populations, including quantitative, population, and evolutionary genetics. Prereq: 4500 (500) or 4606 (606). Not open to students with credit for 640 or EE0B 640.			
<b>5650</b>	<b>Analysis and Interpretation of Biological Data</b>	<b>U G</b>	<b>3</b>
Methods of analyzing biological data including: sampling, descriptive statistics, distributions, analysis of variance, inference, regression, and correlation. Emphasizes practical applications of statistics in the biological sciences. Prereq: Math 1149 or 1150 (150) or equiv, and 10 semester cr hrs at the 3000-level (or 300 level in the quarter system) or above in Agricultural or Biological Sciences. Not open to students with credit for 650.			
<b>5700</b>	<b>Systems of Genetic Analysis</b>	<b>U G</b>	<b>3</b>
Analysis of select fungal, invertebrate, vertebrate, and plant model systems used in modern experimental genetics. Prereq: 4500 (500), 4606 (606), 5607 (607), or 5608 (608), or Grad standing, or permission of instructor. Not open to students with credit for 700.			
<b>5701</b>	<b>DNA Transactions and Gene Regulation</b>	<b>U G</b>	<b>3</b>
Understanding mechanisms of DNA replication, DNA repair and recombination, transcription, translation, regulation of gene expression, and the experimental approaches to these topics. Prereq: 4500, 4606, Biochem 4511, or equiv., and Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for Biochem 5701. Cross-listed in Biochem.			

<b>5705</b>	<b>Advances in Cell Biology</b>	<b>U G</b>	<b>2</b>
An advanced study of selected key areas of research in eukaryotic cell biology. Prereq: A grade of B- or above in 5607, or Grad standing, or permission of instructor.			
<b>5715</b>	<b>Developmental Genetics</b>	<b>U G</b>	<b>2</b>
An advanced study of the regulation of developmentally significant genes and cellular interactions involved in differentiation and pattern formation in invertebrate, vertebrate, and plant model organisms. Prereq: A grade of B- or above in 5608, or Grad standing, or permission of instructor.			
<b>5735</b>	<b>Plant Biochemistry</b>	<b>U G</b>	<b>3</b>
Focus on biochemical processes unique to plants, including photosynthesis, respiration, carbon fixation and carbohydrate metabolic networks, cell wall and lipid synthesis, and nitrogen and sulfur assimilation for macromolecular synthesis. Prereq: Biochem 4511 (511), or equiv. Not open to students with credit for PlntBio 735 or 736. Cross-listed in Biochem.			
<b>5795</b>	<b>Special Topics in Molecular Genetics</b>	<b>U G</b>	<b>1 - 3</b>
Lecture/discussion in a seminar format of publications, current research, or research techniques in the areas of cell biology, development, genetics, genomics, molecular biology, or plant biology. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>5796</b>	<b>Current Topics in Signal Transduction</b>	<b>U G</b>	<b>1 - 2</b>
A discussion of signal transduction mechanisms in animal, fungal, and plant systems. Prereq: 5607 (607), 5608 (608), 5607E, 5608E, 607H, BioChem 4511 (511) or equiv, or Grad standing, or permission of instructor. Not open to students with credit for PlntBio 796.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 15</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions.			
<b>5798</b>	<b>Study Tour: Domestic</b>	<b>U G</b>	<b>1 - 15</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 3 completions. This course is graded S/U.			
<b>5800</b>	<b>Organelle Biology</b>	<b>U G</b>	<b>2</b>
Structure and function of plastids and mitochondria, apicoplasts and hydrogenosomes. Prereq: 4500 (500), 4500E, or 4606 (606), or permission of instructor. Cross-listed in Micrbio.			
<b>7600</b>	<b>First-Year Student Orientation</b>	<b>G</b>	<b>1</b>
Orientation for first-year students in Molecular Genetics and partner graduate programs; lectures on topics important for successful graduate experience; training in presenting scientific work; training in research ethics. Prereq: Not open to students with credit for OSBP 7600 (760), MCDBio 7600, Biophys 7600, or Micrbio 7600. This course is graded S/U. Cross-listed in OSBP, MCDBio, Biophys, and Micrbio.			
<b>7741</b>	<b>Molecular Virology and Pathogenesis of Viruses</b>	<b>G</b>	<b>5</b>
An integrated study of the molecular mechanisms of virus replication and host-virus relationships that control virus pathogenesis or use as a therapeutic agent. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 770, VetBios 7741 (754), 841, MVIMG 7741 (754), or 841. Cross-listed in VetBios and MVIMG.			
<b>7780</b>	<b>Molecular Genetics Laboratory Rotations</b>	<b>G</b>	<b>3 - 6</b>
Laboratory research procedures, literature readings, and discussions to familiarize the students with specific research areas. Prereq: Grad standing in MolGen. Repeatable to a maximum of 16 cr hrs or 6 completions. This course is graded S/U.			
<b>7807</b>	<b>Gene Expression: Post-Transcriptional Control</b>	<b>G</b>	<b>3</b>
Intensive study of problems in the general area of post-transcriptional control of gene expression. Consists of student presentations and class evaluations of recently published results in these fields. Prereq: 5701 (701) or Biochem 702, and 6 graduate level cr hrs; or permission of instructor. Not open to students with credit for 880.07. Cross-listed in MolBioc and VetBios.			
<b>7890</b>	<b>Molecular Genetics Seminar</b>	<b>G</b>	<b>1</b>
Faculty, graduate students, and outside speakers will participate. Prereq: Grad standing in MolGen. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 12</b>
Research for Master's Thesis only. Repeatable to a maximum of 60 cr hrs or 12 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Research</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## 326 Molecular, Cellular, and Developmental Biology

<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Individual studies of publications, current research, or research techniques in areas of molecular, cellular, or developmental biology. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>7600</b>	<b>First-Year Student Orientation</b>	<b>G</b>	<b>1</b>
Orientation for first-year students in MCDB and partner graduate programs, lectures on topics important for successful graduate experience, training in presenting scientific work, and training in research ethics. Prereq: Not open to students with credit for Biophys, MolGen, or Micrbio 7600, or OSBP 7600 (760). This course is graded S/U. Cross-listed in Biophys, MolGen, OSBP, and Micrbio.			
<b>7780</b>	<b>MCDB Laboratory Rotations</b>	<b>G</b>	<b>3 - 6</b>
Laboratory research procedures, literature readings, and discussions to familiarize students with specific research areas. Prereq: Grad standing in MCDBio. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.			
<b>7890</b>	<b>Seminar in Molecular, Cellular, and Developmental Biology</b>	<b>G</b>	<b>1</b>
Seminar including students, faculty, and outside invited speakers. Prereq: Grad standing in MCDBio. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>7891</b>	<b>Presentation in Molecular, Cellular, and Developmental Biology Seminar</b>	<b>G</b>	<b>1</b>
Seminar including students, faculty, and outside invited speakers. Taken terms the student is presenting. Prereq: Grad standing in MCDBio. Repeatable to a maximum of 6 cr hrs.			
<b>7990</b>	<b>Molecular Life Sciences Seminar Series</b>	<b>G</b>	<b>1</b>
A research seminar course designed to expose doctoral students in the Molecular, Cellular, and Developmental Biology graduate program to cutting-edge research in the molecular and cellular life sciences. Prereq: Grad standing in the MCDBio program. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			

### Moving Image Production

<b>2201</b>	<b>Filmmaking Foundation I</b>	<b>U</b>	<b>3</b>
This entry-level course presents moving image production as an artistic, cultural, and multi-modal practice. It focuses on the building blocks of film grammar and offers an introduction to fundamental concepts and tools needed to work in the moving image, grounded in critical and historical context. Students use project-based learning to work independently and collaboratively.			
<b>2202</b>	<b>Filmmaking Foundation II</b>	<b>U</b>	<b>3</b>
This course is second in a sequence to introduce moving image production as an artistic, cultural, and multi-modal practice. It focuses on the building blocks of film grammar and offers an introduction to fundamental concepts and tools needed to work in the moving image, grounded in critical and historical context. Students use project-based learning to work independently and collaboratively. Prereq: 2201.			
<b>4191</b>	<b>Moving-Image Production Internship</b>	<b>U</b>	<b>½ - 3</b>
On- and off-campus internships give students the opportunity to gain hands-on experience in an area of academic and professional interest. Permission to enroll is required from a faculty advisor, and the number of credit hours associated with the internship will be determined with the advisor's input. Prereq: Permission of MIP faculty advisor. Repeatable to a maximum of 3 cr hours or 2 completions. This course is graded S/U.			
<b>4200</b>	<b>Cinema Today</b>	<b>U</b>	<b>½</b>
Students to attend a specific set of new films, documentaries, and classics at world-class venues such as the Wexner Center of the Arts and when available, any associated visiting filmmakers' discussions of their work. To synthesize these viewings, students will submit response writings that apply specific elements of film language to answer questions about the films. Repeatable to a maximum of 3 cr hours.			
<b>4501</b>	<b>Senior Project I</b>	<b>U</b>	<b>3</b>
The first of a two-semester experience in which students develop an iterative pre-production plan and rough cut/draft stage for their individual or collaborative senior project. Students produce a creative work in the areas of animation, documentary, experimental or narrative or combinations of these modes. Group-oriented critiques advance projects to an intermediate stage of development. Prereq: Sr standing, and permission of instructor or department.			
<b>4502</b>	<b>Senior Project II</b>	<b>U</b>	<b>3</b>
The second of a two-semester experience in which students develop their individual or collaborative capstone project to completion. Students produce a creative work in the areas of animation, documentary, experimental or narrative or combinations of these modes. Group-oriented critiques advance projects to an finalized stage of development. A portfolio of creative work is completed. Prereq: 4501.			

### Music

<b>1101.01</b>	<b>Beginning Piano I: Group Instruction</b>	<b>U</b>	<b>2</b>
Group instruction for students who have had no previous piano study. Prereq: Not open to students with credit for 101.01, or Music majors. VSP Admis Cond course.			
<b>1101.02</b>	<b>Beginning Voice I - Group Instruction</b>	<b>U</b>	<b>2</b>
Group instruction for students who have had no previous voice study. Prereq: Not open to Music majors. Repeatable to a maximum of 4 cr hrs or 2 completions. VSP Admis Cond course.			
<b>1101.35</b>	<b>Beginning Guitar I - Group Instruction</b>	<b>U</b>	<b>2</b>
Introduction course in guitar for the non-music major. Includes chording, strumming and melodic playing. Prereq: Not open to Music majors. Repeatable to a maximum of 4 cr hrs. VSP Admis Cond course.			
<b>1102.01</b>	<b>Beginning Piano II: Group Instruction</b>	<b>U</b>	<b>2</b>
Intermediate course in piano for the non-music major. Prereq: 1101.01 (101.01). Not open to Music majors. Repeatable to a maximum of 4 cr hrs. VSP Admis Cond course.			
<b>1110.33</b>	<b>Applied Music (Prospective Majors): Cello</b>	<b>U</b>	<b>2</b>
Elementary applied cello course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 2201. Prereq: By audition only. Repeatable to a maximum of 4 cr hrs.			
<b>1120</b>	<b>Elementary Music Theory and Aural Training for Non-Majors</b>	<b>U</b>	<b>3</b>
An introduction to the fundamentals of music, music reading, and aural musicianship. Prereq: Enrollment in non-Music major. Not open to students with credit for 1121.			
<b>1121</b>	<b>Elementary Music Theory and Aural Training</b>	<b>U</b>	<b>3</b>
An introduction to the fundamentals of music, music reading, and aural musicianship. Prereq: Not open to students with credit for 121. VSP Admis Cond course.			
<b>2021</b>	<b>Music Theory I for Non-Majors</b>	<b>U</b>	<b>2</b>
Elements of music and musical notation; analytical concepts and terminology; fundamentals of counterpoint and melody; extensive practice through written drill and creative projects. Prereq: Passing of Theory Placement Exam, and permission of instructor. Not open to music majors.			
<b>2022</b>	<b>Music Theory II for Non-Majors</b>	<b>U</b>	<b>2</b>
Principles of diatonic harmony, nonchordal melodic elements, and homophonic phrase structures; extensive practice in part-writing, analysis, and creative application. Prereq: 2021, 2221, or 222, and enrollment in non-Music major. Not open to students with credit for 223.			
<b>2031</b>	<b>The Informed Beginning Pianist</b>	<b>U</b>	<b>3</b>
This course is designed for people with little or no musical background who want to learn how to play piano and gain valuable insights into how piano music has shaped cultural values and norms. GE VPA course.			
<b>2200.11</b>	<b>Applied Music (Secondary): Piano</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: 2264.01 or 266.01, and Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.12</b>	<b>Applied Music (Secondary): Jazz Piano</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.21</b>	<b>Applied Music (Secondary): Voice</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.31</b>	<b>Applied Music (Secondary): Violin</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.32</b>	<b>Applied Music (Secondary): Viola</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.33</b>	<b>Applied Music (Secondary): Cello</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.34</b>	<b>Applied Music (Secondary): Double Bass</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>2200.36</b>	<b>Applied Music (Secondary): Jazz Bass</b>	<b>U</b>	<b>1 - 2</b>
Fundamental applied music instruction in areas other than a student's major or principal area. Prereq: Music major. Repeatable to a maximum of 12 cr hrs or 12 completions.			





## 328 Music

<b>2201.56</b>	<b>Applied Music - Principal - Jazz Trumpet</b>	<b>U</b>	<b>2</b>
Instruction in applied jazz trumpet to develop musicianship, performance, and knowledge of music literature. Prereq: Admission to the School of Music by audition. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>2201.57</b>	<b>Applied Music - Principal - Jazz Trombone</b>	<b>U</b>	<b>2</b>
Instruction in applied jazz trombone to develop musicianship, performance, and knowledge of music literature. Prereq: Admission to the School of Music by audition. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>2201.71</b>	<b>Applied Music - Principal - Percussion</b>	<b>U</b>	<b>2</b>
Instruction in applied percussion to develop musicianship, performance, and knowledge of music literature. Prereq: Admission to the School of Music by audition. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>2201.72</b>	<b>Applied Music - Principal - Jazz Percussion</b>	<b>U</b>	<b>2</b>
Instruction in applied jazz percussion to develop musicianship, performance, and knowledge of music literature. Prereq: Admission to the School of Music by audition. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>2201.91</b>	<b>Applied Music - Principal - Harp</b>	<b>U</b>	<b>2</b>
Instruction in applied harp to develop musicianship, performance, and knowledge of music literature. Prereq: Admission to the School of Music by audition. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.			
<b>2202</b>	<b>Sight-reading for Pianists</b>	<b>U</b>	<b>1</b>
Developing tactile and visual skills at the keyboard, ensemble sight-reading duets, two-piano scores, vocal and instrumental accompanying, transposition, and figured bass realization. Prereq: Enrollment in Performance major with specialization in piano. Repeatable to a maximum of 2 cr hrs.			
<b>2203.01</b>	<b>Chorale</b>	<b>U</b>	<b>½ - 2</b>
A selected group of mixed voices which performs an extensive repertoire in concerts both on and off campus. Prereq: Admission to the School of Music by audition, and permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VPA Admis Cond course.			
<b>2203.02</b>	<b>Symphonic Choir</b>	<b>U</b>	<b>½ - 2</b>
Symphonic Choir is a concert organization whose members perform a variety of literature. Prereq: Admission by audition only. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>2203.03</b>	<b>University Chorus</b>	<b>U</b>	<b>½ - 2</b>
Selected choral works are studied and performed. Prereq: Admission by audition only. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>2203.04</b>	<b>Men's Glee Club</b>	<b>U</b>	<b>½ - 2</b>
Study and performance of choral literature for men's voices. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2203.05</b>	<b>Women's Glee Club</b>	<b>U</b>	<b>½ - 2</b>
Study and performance of choral literature for women's voices. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2203.08</b>	<b>Statesmen</b>	<b>U</b>	<b>½ - 1</b>
Study and performance of small ensemble choral literature for men's voices. Prereq: Admission by audition only. Repeatable to a maximum of 8 cr hrs or 8 completions. VSP Admis Cond course.			
<b>2204.01</b>	<b>University Wind Symphony</b>	<b>U</b>	<b>½ - 2</b>
Preparation and performance of traditional and contemporary literature for symphonic band. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2204.02</b>	<b>University Symphonic Band</b>	<b>U</b>	<b>½ - 2</b>
Preparation and performance of traditional and contemporary literature for symphonic band. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>2204.03</b>	<b>Collegiate Winds</b>	<b>U</b>	<b>½ - 2</b>
Preparation and performance of traditional, contemporary, and educational literature for concert band. Prereq: Admission by audition only. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			
<b>2204.04</b>	<b>University Band</b>	<b>U</b>	<b>½ - 2</b>
Offers students an opportunity to perform symphonic band literature. Prereq: Prior high school instrumental experience; no formal audition required. Repeatable to a maximum of 16 cr hrs or 8 completions. VSP Admis Cond course.			

<b>2205.01</b>	<b>University Marching Band</b>	<b>U</b>	<b>½ - 2</b>
The University Marching Band is a selected group of brass and percussion players that performs at football games, rallies, and concerts during Autumn semester. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. VSP Admis Cond course.			
<b>2205.02</b>	<b>Athletic Band</b>	<b>U</b>	<b>½ - 2</b>
Athletic band provides spirited music for various sporting events (men's and women's basketball, spring football game), as well as several concerts. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 24 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2206.01</b>	<b>University Jazz Ensemble</b>	<b>U</b>	<b>½ - 2</b>
A select group devoted to arranging, rehearsing, and performing jazz literature with an emphasis on contemporary works. Prereq: Open to all students by audition and/or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2206.02</b>	<b>Jazz Lab Ensemble</b>	<b>U</b>	<b>½ - 2</b>
An ensemble devoted to the study and performance of music in various styles of jazz. Prereq: Open to students by audition and/or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. VPA Admis Cond course.			
<b>2206.03</b>	<b>Jazz Workshop Ensemble</b>	<b>U</b>	<b>½ - 2</b>
An ensemble devoted to the study and performance of music in various jazz, jazz rock, blues, and pop styles. Prereq: Open to students by audition and/or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2207.01</b>	<b>University Percussion Ensemble</b>	<b>U</b>	<b>½ - 2</b>
A laboratory and performance musical ensemble whose literature consists of original and transcribed works for percussion instruments alone or with percussion as a dominant feature. Prereq: Enrollment in Music major. Repeatable to a maximum of 20 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2207.02</b>	<b>Steel Pan Ensemble</b>	<b>U</b>	<b>½ - 1</b>
A laboratory and performance experience on authentic steel pans, concentrating on traditional musics of Trinidad, as well as contemporary arrangement. Repeatable to a maximum of 10 cr hrs or 10 completions. VSP Admis Cond course.			
<b>2208.01</b>	<b>Small Ensemble: Piano</b>	<b>U</b>	<b>½ - 1</b>
Intensive study of ensemble works for piano. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2208.02</b>	<b>Small Ensemble: Voice</b>	<b>U</b>	<b>½ - 1</b>
Intensive study of ensemble works for voice. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2208.03</b>	<b>Small Ensemble: Strings</b>	<b>U</b>	<b>½ - 1</b>
Intensive study of ensemble works for strings. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2208.04</b>	<b>Small Ensembles: Woodwinds</b>	<b>U</b>	<b>½ - 1</b>
Intensive study of ensemble works for woodwinds. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2208.05</b>	<b>Small Ensembles: Brass</b>	<b>U</b>	<b>½ - 1</b>
Intensive study of ensemble works for brass. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2208.06</b>	<b>Small Ensembles: Jazz Combos</b>	<b>U</b>	<b>½ - 1</b>
Small groups devoted to the study and performance of music in the various jazz combo styles. Prereq: Admission by audition, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>2208.16</b>	<b>Small Ensemble: Gospel Choir</b>	<b>U</b>	<b>1</b>
Study and performance of gospel and spiritual choir literature for mixed chorus. Repeatable to a maximum of 10 cr hrs.			
<b>2208.20</b>	<b>African Performing Ensemble</b>	<b>U</b>	<b>½ - 1</b>
Ensemble dedicated to performing African-derived music. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2208.22</b>	<b>Andean Music Ensemble</b>	<b>U</b>	<b>½ - 1</b>
Learning to play and perform music from Bolivia, Peru, Ecuador, Chile, Colombia and Argentina. The course explores various musical genres within the Andean region. Students study techniques and methods for playing Andean instruments and learn to sing in Spanish, Quechua and Aymara. Repeatable to a maximum of 10 cr hrs or 10 completions. Cross-listed in Spanish.			

<b>2208.80</b>	<b>Sonic Arts Ensemble</b>	<b>U</b>	<b>½ - 1</b>
An ensemble-based course focused on the use of the computer and/or electronic technologies in music performance and music composition, along with the development of new technologies (software and hardware) for sonic arts performance. Prereq: Audition required. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>2208.99</b>	<b>Small Ensemble: Miscellaneous</b>	<b>U</b>	<b>½ - 1</b>
Intensive study of ensemble works for varied ensembles. Prereq: Admission by audition, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2209</b>	<b>Jazz Improvisation I</b>	<b>U</b>	<b>2</b>
Fundamentals of jazz improvisation; seventh chord structures major, minor, pentatonic and blues scales; jazz patterns and phrasing; analysis and improvisation of blues and II-V progressions. Prereq: 2221. Not open to students with credit for 209. This course is available for EM credit.			
<b>2215.01</b>	<b>University Symphony Orchestra</b>	<b>U</b>	<b>½ - 2</b>
The University Orchestra is an 85-piece orchestra of full instrumentation devoted to the preparation of standard and modern literature. Prereq: Admission by audition. Repeatable to a maximum of 24 cr hrs or 12 completions. VSP Admis Cond course.			
<b>2215.02</b>	<b>First Year Orchestra</b>	<b>U</b>	<b>½ - 2</b>
Rehearsal and performance experience for non-music majors who played an orchestral instrument in high school. Prereq: Must have played an orchestral instrument in high school. Not open to Music majors. Repeatable to a maximum of 4 cr hrs or 2 completions. VSP Admis Cond course.			
<b>2216.11</b>	<b>Applied Music (Non Major): Piano</b>	<b>U</b>	<b>2</b>
Course provides fundamental applied piano instruction in piano for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.12</b>	<b>Applied Music (Non Major): Jazz Piano</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz piano for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.21</b>	<b>Applied Music (Non Major): Voice</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in voice for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.31</b>	<b>Applied Music (Non Major): Violin</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in violin for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.32</b>	<b>Applied Music (Non Major): Viola</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in viola for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.33</b>	<b>Applied Music (Non Major): Cello</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in cello for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.34</b>	<b>Applied Music (Non Major): Double Bass</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in double bass for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.36</b>	<b>Applied Music (Non Major): Jazz Bass</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz bass for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.37</b>	<b>Applied Music (Non Major): Jazz Guitar</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz guitar for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.41</b>	<b>Applied Music (Non Major): Flute</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in flute for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.42</b>	<b>Applied Music (Non Major): Oboe</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in oboe for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			

<b>2216.43</b>	<b>Applied Music (Non Major): Clarinet</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in clarinet for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.45</b>	<b>Applied Music (Non Major): Saxophone</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in saxophone for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.46</b>	<b>Applied Music (Non Major): Bassoon</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in bassoon for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.47</b>	<b>Applied Music (Non Major): Jazz Saxophone</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz saxophone for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.51</b>	<b>Applied Music (Non Major): Horn</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in horn for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.52</b>	<b>Applied Music (Non Major): Trumpet</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in trumpet for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.53</b>	<b>Applied Music (Non Major): Trombone</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in trombone for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.54</b>	<b>Applied Music - Non Major - Euphonium</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in euphonium for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.55</b>	<b>Applied Music - Non Major - Tuba</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in tuba for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.56</b>	<b>Applied Music - Non Major - Jazz Trumpet</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz trumpet for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.57</b>	<b>Applied Music - Non Major - Jazz Trombone</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz trombone for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2216.72</b>	<b>Applied Music - Non Major - Jazz Percussion</b>	<b>U</b>	<b>2</b>
Course provides fundamental studio instruction in jazz percussion for non-majors and minors. Prereq: Permission of instructor. Not open to Music majors. Repeatable to a maximum of 16 cr hrs.			
<b>2220</b>	<b>Introduction to Music Technology</b>	<b>U</b>	<b>1</b>
Introduction to the use of technology in the practice and study of music. Prereq: Open to music majors only, or permission of instructor. Not open to students with credit for 220. This course is available for EM credit.			
<b>2221</b>	<b>Music Theory I</b>	<b>U</b>	<b>2</b>
Elements of music and musical notation; analytical concepts and terminology; fundamentals of counterpoint and melody; extensive practice through written drill and creative projects. Prereq: Open to Music majors only. Not open to students with credit for 221. This course is available for EM credit.			
<b>2222</b>	<b>Music Theory II</b>	<b>U</b>	<b>2</b>
Principles of diatonic harmony, nonchordal melodic elements, and homophonic phrase structures; extensive practice in part-writing, analysis, and creative application. Prereq: 2221, 2021, or 222, and enrollment in Music major. Not open to students with credit for 223. This course is available for EM credit.			
<b>2224</b>	<b>Aural Training I</b>	<b>U</b>	<b>2</b>
Training in aural musicianship and music reading; practical application through solfege, dictation and keyboard drill. Prereq: Passing theory placement test. Not open to students with credit for 224. This course is available for EM credit.			
<b>2225</b>	<b>Aural Training II</b>	<b>U</b>	<b>2</b>
A continuation of 2224 introducing more challenging diatonic materials. Prereq: 225 or 2224, and 2221, 2221.01 or 222. Not open to students with credit for 225 and 226. This course is available for EM credit.			

## 330 Music

<b>2231</b>	<b>Jazz Theory</b>	<b>U</b>	<b>2</b>
The forms and compositional techniques of jazz, including chord progression formulas, chord alteration, lead-sheet paraphrasing, countermelody and bass-line construction, and creative application. Prereq: 2222 and 2225. Not open to students with credit for 231.			
<b>2232</b>	<b>Jazz Keyboard Harmony</b>	<b>U</b>	<b>2</b>
Designed to provide students with piano skills that directly relate to other jazz areas such as composition, arranging, and improvisation. Prereq: 2231 and 2261.01. Not open to students with credit for 232.			
<b>2240</b>	<b>Music History I</b>	<b>U</b>	<b>3</b>
The development of western art music from ancient times to 1700. Prereq: Music major, or permission of instructor. Not open to students with credit for 240.			
<b>2241</b>	<b>Music History II</b>	<b>U</b>	<b>3</b>
The development of European and American art music from 1700 to 1900. Prereq: 2240, and Music major; or permission of instructor. Not open to students with credit for 241.			
<b>2242</b>	<b>Music History III</b>	<b>U</b>	<b>3</b>
The development of European and American art music in the 20th and 21st centuries. Prereq: 2241, and Music major; or permission of instructor. Not open to students with credit for 242.			
<b>2244</b>	<b>African-American Musical Traditions</b>	<b>U</b>	<b>2</b>
A study of selective genres and styles of music originating primarily in the African-American experience. Prereq: Not open to students with credit for 244 or AfAmAS 244. VSP Admis Cond course.			
<b>2250</b>	<b>Music Cultures of the World</b>	<b>U</b>	<b>3</b>
A survey of musical cultures outside the Western European tradition of the fine arts. Prereq: Not open to students with credit for 250. GE VPA and diversity global studies course. VSP Admis Cond course.			
<b>2251</b>	<b>The World of Classical Music</b>	<b>U</b>	<b>3</b>
An introduction to the world of classical music and to its genres, composers, styles, societies, and historical periods. No music background is required. Prereq: Not open to students with credit for 251 or Music majors. GE VPA and diversity global studies course. VSP Admis Cond course.			
<b>2251E</b>	<b>The World of Classical Music</b>	<b>U</b>	<b>3</b>
An introduction to the world of classical music and to its genres, composers, styles, societies, and historical periods. No music background is required. Music 2251E is an honors embedded course. Prereq: Honors standing or permission of instructor. Not open to students with credit for 251 or Music majors. GE VPA and diversity global studies course. VSP Admis Cond course.			
<b>2251H</b>	<b>The World of Classical Music</b>	<b>U</b>	<b>3</b>
An introduction to the world of classical music and to its genres, composers, styles, societies, and historical periods. No music background is required. Music 2251H is an honors course. Prereq: Honors standing. Not open to students with credit for 251 or Music majors. GE VPA and diversity global studies course. VSP Admis Cond course.			
<b>2252</b>	<b>History of Rock 'n' Roll</b>	<b>U</b>	<b>3</b>
The history and culture of rock 'n' roll. Prereq: Not open to students with credit for 252. GE VPA course.			
<b>2253</b>	<b>Introduction to Jazz</b>	<b>U</b>	<b>3</b>
A study of the characteristics, styles, structures of jazz, and jazz performers. Prereq: Not open to students with credit for 253 or to Music majors. GE VPA course.			
<b>2254</b>	<b>Video Game Music</b>	<b>U</b>	<b>3</b>
An introduction to the history and function of musical sound in video games. GE VPA course.			
<b>2261.01</b>	<b>Keyboard Skills I</b>	<b>U</b>	<b>1</b>
Beginning group piano instruction for music majors. Prereq: Music major. Concur: 2221. Not open to keyboard majors or students with credit for 261.01. This course is available for EM credit.			
<b>2261.03</b>	<b>String Techniques I</b>	<b>U</b>	<b>1</b>
Applied music methods and materials for strings. Prereq: Music major. Not open to students with credit for 261.03. This course is available for EM credit.			
<b>2261.04</b>	<b>Oboe/Bassoon Techniques</b>	<b>U</b>	<b>1</b>
Pedagogical and performance techniques for oboe and bassoon. Prereq: Music major. Not open to students with credit for 261.46 or 261.42. This course is available for EM credit.			
<b>2261.07</b>	<b>Percussion Techniques</b>	<b>U</b>	<b>1</b>
Percussion instruction for BME majors. Prereq: Music major. Not open to students with credit for 261.07. This course is available for EM credit.			

<b>2261.11</b>	<b>Basic Conducting Lab-Instrumental</b>	<b>U</b>	<b>1</b>
Basic conducting skill development emphasizing pulse, rhythm and physical coordination. Prereq: Enrollment in Music major. Not open to students with credit for 261.11. This course is available for EM credit.			
<b>2261.12</b>	<b>Basic Conducting Lab-Choral</b>	<b>U</b>	<b>1</b>
Basic choral conducting skill development emphasizing pulse, rhythm and physical coordination. Prereq: Enrollment in Music major. This course is available for EM credit.			
<b>2261.99</b>	<b>Winds, Strings, and Percussion Techniques</b>	<b>U</b>	<b>1</b>
Functional knowledge of wind, strings, and percussion instruments. Prereq: Music major. Not open to instrumental majors or students with credit for 261.99. This course is available for EM credit.			
<b>2262.01</b>	<b>Keyboard Skills II</b>	<b>U</b>	<b>1</b>
Intermediate group piano instruction for music majors. Prereq: 2261.01 (261.01), and Music major. Not open to piano majors or students with credit for 262.01. This course is available for EM credit.			
<b>2262.03</b>	<b>String Techniques II</b>	<b>U</b>	<b>1</b>
Pedagogical and performance techniques for string instruments. Prereq: 2261.03, and Music major. Not open to students with credit for 262.03. This course is available for EM credit.			
<b>2262.04</b>	<b>Flute/Clarinet/Saxophone Techniques</b>	<b>U</b>	<b>1</b>
Pedagogical and performance techniques for flute, clarinet, and saxophone. Prereq: Music major. Not open to students with credit for 262.04. This course is available for EM credit.			
<b>2262.05</b>	<b>Brass Techniques</b>	<b>U</b>	<b>1</b>
Pedagogical and performance techniques for brass instruments. Prereq: Music major. Not open to students with credit for 262.05. This course is available for EM credit.			
<b>2262.11</b>	<b>Conducting (Instrumental)</b>	<b>U</b>	<b>1</b>
Conducting instruction applied to band, orchestra, and ensemble literature and performance. Prereq: 2261.11 (261.11), and Music major. Not open to students with credit for 660. This course is available for EM credit.			
<b>2262.12</b>	<b>Conducting (Choral)</b>	<b>U</b>	<b>1</b>
Conducting instruction applied to choral literature and performance problems. Prereq: 2261.12, and Music major. Not open to students with credit for 661. This course is available for EM credit.			
<b>2262.13</b>	<b>Conducting (Strings)</b>	<b>U</b>	<b>1</b>
Conducting instruction applied to orchestral literature and performance. Prereq: 2261.11 (261.11), and Music major. This course is available for EM credit.			
<b>2263.01</b>	<b>Keyboard Skills III</b>	<b>U</b>	<b>1</b>
Intermediate group piano instruction for music majors. Prereq: 2262.01, and Music major. Not open to students with credit for 263.01. This course is available for EM credit.			
<b>2263.02</b>	<b>Voice Pedagogy</b>	<b>U</b>	<b>1</b>
Vocal pedagogy, anatomy, and physiology of the vocal mechanism. Prereq: Music major. Not open to students with credit for 263.02. This course is available for EM credit.			
<b>2264.01</b>	<b>Keyboard Skills IV</b>	<b>U</b>	<b>1</b>
Intermediate group piano instruction for music majors. Prereq: 2263.01, and Music major. Not open to students with credit for 264.01. This course is available for EM credit.			
<b>2267</b>	<b>String Pedagogy for the Applied Studio</b>	<b>U</b>	<b>1</b>
The organization, development, and pedagogy for the applied string instrument studio. Prereq: 2201, or permission of instructor. Not open to students with credit for 267.			
<b>2271</b>	<b>Introduction to Music Enterprise</b>	<b>U</b>	<b>3</b>
An introductory survey of the patterns and practices associated with the intersection of music, commerce, and society from the early 19th century to the present. Prereq: Not open to students with credit for 271.			
<b>2288</b>	<b>Bebop to Doowop to Hip-hop: The Rhythm and Blues Tradition</b>	<b>U</b>	<b>3</b>
Examines the aesthetic and historical evolution of Rhythm and Blues: Black music tradition including Bebop, Rock and Roll and Hip hop redefining American popular culture post WWII. Prereq: Not open to students with credit for 288 or AfAmAS 2288 (288). GE VPA and diversity soc div in the US course. Cross-listed in AfAmAS.			
<b>2297</b>	<b>Music Education Laboratory Ensemble</b>	<b>U</b>	<b>1</b>
Laboratory ensembles which provide performance experience on secondary instruments. Repeatable to a maximum of 3 cr hrs.			
<b>2413</b>	<b>Diction for Singers I</b>	<b>U</b>	<b>2</b>
Introduction to phonetic alphabet and advanced study of phonetics and sound production as applied to singing in Italian. Prereq: Music major.			

<b>2414</b>	<b>Diction for Singers II</b>	<b>U</b>	<b>2</b>
Advanced study of phonetics and sound production as applied to singing in German and French. Prereq: 2413, and Music major.			
<b>2470</b>	<b>Introduction to Music Education</b>	<b>U</b>	<b>3</b>
Professional orientation for prospective school music teachers; study of musical development, human relations, discipline, evaluation, philosophy of teaching, and the music curriculum; comprehensive field experience. Prereq: Psych 1100, and Soph standing, and Enrollment in Music Education major. Not open to students with credit for 470.			
<b>2470E</b>	<b>Introduction to Music Education</b>	<b>U</b>	<b>3</b>
Professional orientation for prospective school music teachers; study of musical development, human relations, discipline, evaluation, philosophy of teaching, and the music curriculum; comprehensive field experience. Prereq: Honors standing, Psych 1100, and Soph standing in Music Education; or permission of instructor.			
<b>3021</b>	<b>Music Theory III for Non-Majors</b>	<b>U</b>	<b>2</b>
Principles of 18th- and 19th-century chromatic harmony and modulation; extensive practice in part-writing, analysis, and creative application. Prereq: 2022 or 2222, and enrollment in non-Music major. Not open to students with credit for 421.			
<b>3022</b>	<b>Music Theory IV for Non-Majors</b>	<b>U</b>	<b>2</b>
Introduction to the study of the structural principles and forms of homophonic music; Extensive practice through written drill, analysis and creative projects; composition techniques in 20th century music. Prereq: 3021 or 3421, and enrollment in non-Music major. Not open to students with credit for 422.			
<b>3210</b>	<b>Jazz Improvisation II</b>	<b>U</b>	<b>2</b>
Improvisation techniques utilizing blues and pentatonic scales, elaboration of seventh chord structures; analysis of transcribed solos; improvisation of vertical, horizontal, and combination tunes; exploration of Bebop and post-bop literature. Prereq: 2209. Not open to students with credit for 210. This course is available for EM credit.			
<b>3310</b>	<b>Introduction to Operatic Stage Techniques</b>	<b>U</b>	<b>2</b>
An introductory course to stage movement techniques, character analysis, role preparation, as applied to the operatic stage. Prereq: 3401.21 or 3402.21, or permission of instructor. Not open to students with credit for 310.			
<b>3312</b>	<b>Opera Performance</b>	<b>U</b>	<b>½ - 2</b>
Instruction and experience in preparation for opera performance, including study of operatic literature and coaching of operatic roles. Prereq: 3310, and audition; or permission of instructor. Repeatable to a maximum of 10 cr hrs.			
<b>3315</b>	<b>Voice Science and Pedagogy for the Undergraduate</b>	<b>U</b>	<b>3</b>
Vocal pedagogy, anatomy, and physiology of the vocal mechanism. Prereq: Open only to Voice majors.			
<b>3330</b>	<b>Music Production and Reception: Institutions, Patterns, and Practices</b>	<b>U</b>	<b>3</b>
Intermediate survey of the interrelationships of music, media, and commerce in society, emphasizing technology, economics, law, and the public purposes of the musical arts. Prereq: 2271. Not open to students with credit for 330.			
<b>3342</b>	<b>Introduction to Opera</b>	<b>U</b>	<b>3</b>
An introduction to the dramatic and musical conventions of opera. Prereq: English 1110 (110) or 1111 (111). Not open to students with credit for 342. GE VPA course.			
<b>3343</b>	<b>Music, Body and Brain</b>	<b>U</b>	<b>3</b>
An introduction to the relationship between culturally conditioned musical experience and physiological and cognitive processes. Prereq: English 1110 or equiv. GE VPA course.			
<b>3344</b>	<b>Film Music</b>	<b>U</b>	<b>3</b>
A study of how music has functioned in film across its century-long history, as produced in Hollywood and in other countries, and by filmmakers independent of the studio system. Prereq: English 1110 or 1111. GE VPA course.			
<b>3345</b>	<b>Topics in Music History</b>	<b>U</b>	<b>3</b>
Topics vary; study of selected topics in music history and world music. Repeatable to a maximum of 15 cr hrs. GE VPA course.			
<b>3347</b>	<b>From Bach to Beethoven</b>	<b>U</b>	<b>3</b>
The styles and genres of five eminent composers of the 18th century: Bach, Handel, Mozart, Haydn, and Beethoven. Prereq: English 1110 (110) or 1111 (111). Not open to students with credit for 347. GE VPA and diversity global studies course.			

<b>3348</b>	<b>Music on the Move in a Globalized World</b>	<b>U</b>	<b>3</b>
Survey of globalization's effects on musical cultures around the world; explores both the role of diasporic migration and the use of recording and broadcasting technology. Prereq: English 1110 (110) or equiv. Not open to students with credit for 348. GE VPA and diversity global studies course.			
<b>3349</b>	<b>The Beatles in 20th Century Music</b>	<b>U</b>	<b>3</b>
Twentieth-century art music and popular traditions seen through the prism of the Beatles songs. Prereq: English 1110 (110) or 1111 (111), or equiv. Not open to students with credit for 349. GE VPA course.			
<b>3350</b>	<b>The British Invasion: Exploring the impact of British popular music in the 1960s</b>	<b>U</b>	<b>3</b>
Offers an introduction and orientation to the popular music of the United Kingdom, most specifically, music from the country of England. It will explore the meaning and impact of the 1960s as reflected in the music of that era. Specific attention will be given to the international exchange of musical influences between the United States and the U.K. Prereq: GPA 3.0 in respective major, and Soph standing or above. GE VPA and education abroad course.			
<b>3351</b>	<b>The World of Music</b>	<b>U</b>	<b>3</b>
Introduction to music in non-Western cultures and societies and to the concepts, vocabulary, and methodology for dealing with this music. Prereq: Soph standing or above in Music. Not open to students with credit for 2250 or 351.			
<b>3360</b>	<b>The Brazilian Experience: Surveying Brazilian Culture through Music and Education</b>	<b>U</b>	<b>3</b>
This course offers an overview of the complex musical culture of Brazil. Beginning with an introduction to Brazilian history, this course shall focus specifically on the musical evolution the country has experienced in its 500-year history, as well as how the European, Native American, and African influences have blended to create a distinctive musical identity. Prereq: Permission of instructor. GE VPA course.			
<b>3364</b>	<b>Musical Citizenship: Activism, Advocacy and Engagement in Sound</b>	<b>U</b>	<b>3</b>
This course examines the sonic expressions of people's status, identity, rights, and duties as political subjects across multiple scales of place. We will consider the value of cultural advocacy in the public sector and social activism in the public sphere and the importance of partnering with (non)governmental institutions, community organizations, and grassroots affiliates to advance musical art. GE VPA and diversity global studies course.			
<b>3364E</b>	<b>Musical Citizenship: Activism, Advocacy and Engagement in Sound</b>	<b>U</b>	<b>3</b>
This course examines the sonic expressions of people's status, identity, rights, and duties as political subjects across multiple scales of place. We will consider the value of cultural advocacy in the public sector and social activism in the public sphere and the importance of partnering with (non)governmental institutions, community organizations, and grassroots affiliates to advance musical art. GE VPA and diversity global studies course.			
<b>3370</b>	<b>Music for Elementary Teachers</b>	<b>U</b>	<b>2</b>
Music literature and teaching aids for children, including singing, rhythmic, creative, and listening experiences, and their presentation. Prereq: Not open to students with credit for 370.			
<b>3373</b>	<b>Music for Special Education Teachers</b>	<b>U</b>	<b>2</b>
Music literature and teaching strategies for exceptional children, including singing, rhythmic, creative, and listening experiences. Prereq: Jr or Sr standing, and enrollment in Special Education major. Not open to students with credit for 373.			
<b>3401.11</b>	<b>Applied Music - Principal - Piano</b>	<b>U</b>	<b>2</b>
Applied piano instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201), and enrollment in Music major. Not open to students with credit for 401.11. Repeatable to a maximum of 6 cr hrs.			
<b>3401.12</b>	<b>Applied Music - Principal - Jazz Piano</b>	<b>U</b>	<b>2</b>
Applied jazz piano instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 2201(201), and enrollment in Music major. Repeatable to a maximum of 6 cr hrs.			
<b>3401.21</b>	<b>Applied Music - Principal - Voice</b>	<b>U</b>	<b>2</b>
Applied voice instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201), and enrollment in Music major. Repeatable to a maximum of 6 cr hrs.			
<b>3401.31</b>	<b>Applied Music - Principal - Violin</b>	<b>U</b>	<b>2</b>
Applied violin instruction to develop musicianship, performance, and knowledge of music literature. Prereq: Music 2201 (201), and enrollment in Music major. Repeatable to a maximum of 6 cr hrs.			



<b>3402.51</b>	<b>Applied Music (Principal): Horn</b>	<b>U</b>	<b>4</b>
Horn instruction to develop professional qualities of musicianship, technique, and knowledge of music literature. Prereq: 2201 (201). Open only to BM in Performance majors. Repeatable to a maximum of 12 cr hrs.			
<b>3402.52</b>	<b>Applied Music (Principal): Trumpet</b>	<b>U</b>	<b>4</b>
Trumpet instruction to develop professional qualities of musicianship, technique, and knowledge of music literature. Prereq: 2201 (201). Open only to BM in Performance majors. Repeatable to a maximum of 12 cr hrs.			
<b>3402.53</b>	<b>Applied Music (Principal): Trombone</b>	<b>U</b>	<b>4</b>
Trombone instruction to develop professional qualities of musicianship, technique, and knowledge of music literature. Prereq: 2201 (201). Open only to BM in Performance majors. Repeatable to a maximum of 12 cr hrs.			
<b>3402.54</b>	<b>Applied Music (Principal): Euphonium</b>	<b>U</b>	<b>4</b>
Euphonium instruction to develop professional qualities of musicianship, technique, and knowledge of music literature. Prereq: 2201 (201). Open only to BM in Performance majors. Repeatable to a maximum of 12 cr hrs.			
<b>3402.71</b>	<b>Applied Music (Principal): Percussion</b>	<b>U</b>	<b>4</b>
Percussion instruction to develop professional qualities of musicianship, technique, and knowledge of music literature. Prereq: 2201 (201). Open only to BM in Performance majors. Repeatable to a maximum of 12 cr hrs.			
<b>3402.91</b>	<b>Applied Music (Principal): Harp</b>	<b>U</b>	<b>4</b>
Harp instruction to develop professional qualities of musicianship, technique, and knowledge of music literature. Prereq: 2201 (201). Open only to BM in Performance majors. Repeatable to a maximum of 12 cr hrs.			
<b>3403.11</b>	<b>Applied Music (Principal): Piano</b>	<b>U</b>	<b>2</b>
Applied piano instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music majors only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.12</b>	<b>Applied Music (Principal): Jazz Piano</b>	<b>U</b>	<b>2</b>
Applied jazz piano instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.21</b>	<b>Applied Music (Principal): Voice</b>	<b>U</b>	<b>2</b>
Applied voice instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.31</b>	<b>Applied Music (Principal): Violin</b>	<b>U</b>	<b>2</b>
Applied violin instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.33</b>	<b>Applied Music (Principal): Cello</b>	<b>U</b>	<b>2</b>
Applied cello instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.34</b>	<b>Applied Music (Principal): Double Bass</b>	<b>U</b>	<b>2</b>
Applied double bass instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.36</b>	<b>Applied Music (Principal): Jazz Bass</b>	<b>U</b>	<b>2</b>
Applied jazz bass instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.37</b>	<b>Applied Music (Principal): Jazz Guitar</b>	<b>U</b>	<b>2</b>
Applied jazz guitar instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.41</b>	<b>Applied Music (Principal): Flute</b>	<b>U</b>	<b>2</b>
Applied flute instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.42</b>	<b>Applied Music (Principal): Oboe</b>	<b>U</b>	<b>2</b>
Applied oboe instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA Music students only. Repeatable to a maximum of 12 cr hrs.			

<b>3403.43</b>	<b>Applied Music (Principal): Clarinet</b>	<b>U</b>	<b>2</b>
Applied clarinet instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.46</b>	<b>Applied Music (Principal): Bassoon</b>	<b>U</b>	<b>2</b>
Applied bassoon instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.47</b>	<b>Applied Music (Principal): Jazz Saxophone</b>	<b>U</b>	<b>2</b>
Applied jazz saxophone instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.51</b>	<b>Applied Music (Principal): Horn</b>	<b>U</b>	<b>2</b>
Applied horn instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201). Open to BA in Music students only. Repeatable to a maximum of 12 cr hrs.			
<b>3403.52</b>	<b>Applied Music - Principal - Trumpet</b>	<b>U</b>	<b>2</b>
Applied trumpet instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3403.53</b>	<b>Applied Music - Principal - Trombone</b>	<b>U</b>	<b>2</b>
Applied trombone instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3403.54</b>	<b>Applied Music - Principal - Euphonium</b>	<b>U</b>	<b>2</b>
Applied euphonium instruction required in the BA curriculum to develop musicianship, performance, and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3403.55</b>	<b>Applied Music - Principal - Tuba</b>	<b>U</b>	<b>2</b>
Applied tuba instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3403.71</b>	<b>Applied Music - Principal - Percussion</b>	<b>U</b>	<b>2</b>
Applied percussion instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3403.72</b>	<b>Applied Music - Principal - Jazz Percussion</b>	<b>U</b>	<b>2</b>
Applied jazz percussion instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3403.91</b>	<b>Applied Music - Principal - Harp</b>	<b>U</b>	<b>2</b>
Applied harp instruction in the BA curriculum to develop musicianship, performance and knowledge of music literature. Prereq: 2201 (201), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>3421</b>	<b>Music Theory III</b>	<b>U</b>	<b>2</b>
Principles of 18th- and 19th-century chromatic harmony and modulation; extensive practice in part-writing, analysis, and creative application. Prereq: 2222, and enrollment in Music major. Not open to students with credit for 421.			
<b>3422</b>	<b>Music Theory IV</b>	<b>U</b>	<b>2</b>
Introduction to the study of the structural principles and forms of homophonic music; Extensive practice through written drill, analysis and creative projects; composition techniques in 20th century music. Prereq: 3421, and enrollment in Music major. Not open to students with credit for 422.			
<b>3424</b>	<b>Aural Training III</b>	<b>U</b>	<b>2</b>
Intensive training in aural musicianship and music reading; practical application through solfege, dictation, and keyboard drill. Prereq: 2225. Not open to students with credit for 425.			
<b>3425</b>	<b>Aural Training IV</b>	<b>U</b>	<b>2</b>
Advanced training in aural musicianship and music reading; practical application through solfege, dictation, and keyboard drill. Prereq: 3424. Not open to students with credit for 425.			
<b>3427</b>	<b>Keyboard Harmony I</b>	<b>U</b>	<b>2</b>
Systematic review and utilization of basic harmonic materials at the keyboard. Prereq: 3422. Not open to students with credit for 427.			
<b>3428</b>	<b>Keyboard Harmony II</b>	<b>U</b>	<b>2</b>
Introduction and practical experience at score reading at the keyboard. Prereq: 3427. Not open to students with credit for 428.			

## 334 Music

<b>3431</b>	<b>Protest in American Music</b>	<b>U</b>	<b>3</b>
Examines the relationship between and among music, media technologies, and both mass and social media from musical, textual, political, economic and social perspectives. Prereq: Not open to students with credit for 431.			
<b>3433</b>	<b>Scoring for Small Jazz Ensembles</b>	<b>U</b>	<b>2</b>
Scoring projects for jazz combos of various sizes and instrumentation. Prereq: 3422. Not open to students with credit for 433.02.			
<b>3434</b>	<b>Scoring for Large Jazz Ensembles</b>	<b>U</b>	<b>2</b>
Scoring projects for the stage band, with concentration on voicing, ranges, doublings, balance, and notational procedures. Prereq: 3433. Not open to students with credit for 433.03.			
<b>3446</b>	<b>Jazz Styles and Analysis</b>	<b>U</b>	<b>3</b>
Stylistic variants of jazz involving technical and structural aspects so that the student may recognize, play, and score them authentically. Prereq: Permission of instructor. Not open to students with credit for 446.			
<b>3578</b>	<b>Introduction to General Music in grades K-8</b>	<b>U</b>	<b>2</b>
Functional music making and introduction to K-8 methods. Prereq: 2470 and enrollment in Music Education major. Not open to students with credit for 578.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Independent study on a special problem or topic in music. Prereq: Permission of instructor. Open to Music majors only. Repeatable to a maximum of 30 or hrs or 10 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group study of various topics in music. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions.			
<b>4500.01</b>	<b>Review of Music Analysis Techniques</b>	<b>U</b>	<b>2</b>
Review of selected music topics; intended for beginning graduate students in music. Prereq: Grad standing, or permission of instructor for undergrads. Repeatable to a maximum of 4 cr hrs.			
<b>4500.02</b>	<b>Review of Music History</b>	<b>U</b>	<b>2</b>
Review of selected music topics; intended for beginning graduate students in music. Prereq: Grad standing, or permission of instructor for undergrads. Repeatable to a maximum of 4 cr hrs.			
<b>4501.11</b>	<b>Applied Music - Principal - Piano</b>	<b>U</b>	<b>2</b>
Applied piano instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.21</b>	<b>Applied Music - Principal - Voice</b>	<b>U</b>	<b>2</b>
Applied voice instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.31</b>	<b>Applied Music - Principal - Violin</b>	<b>U</b>	<b>2</b>
Applied violin instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.32</b>	<b>Applied Music - Principal - Viola</b>	<b>U</b>	<b>2</b>
Applied viola instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.33</b>	<b>Applied Music - Principal - Cello</b>	<b>U</b>	<b>2</b>
Applied cello instruction to develop musicianship, performance, and a wide reading knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.34</b>	<b>Applied Music - Principal - Double Bass</b>	<b>U</b>	<b>2</b>
Applied double bass instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.37</b>	<b>Applied Music - Principal - Jazz Guitar</b>	<b>U</b>	<b>2</b>
Applied jazz guitar instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.41</b>	<b>Applied Music - Principal - Flute</b>	<b>U</b>	<b>2</b>
Applied flute instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.42</b>	<b>Applied Music - Principal - Oboe</b>	<b>U</b>	<b>2</b>
Applied oboe instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			

<b>4501.43</b>	<b>Applied Music - Principal - Clarinet</b>	<b>U</b>	<b>2</b>
Applied clarinet instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.45</b>	<b>Applied Music - Principal - Saxophone</b>	<b>U</b>	<b>2</b>
Applied saxophone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.46</b>	<b>Applied Music - Principal - Bassoon</b>	<b>U</b>	<b>2</b>
Applied bassoon instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.47</b>	<b>Applied Music - Principal - Jazz Saxophone</b>	<b>U</b>	<b>2</b>
Applied jazz saxophone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.51</b>	<b>Applied Music - Principal - Horn</b>	<b>U</b>	<b>2</b>
Applied horn instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.52</b>	<b>Applied Music - Principal - Trumpet</b>	<b>U</b>	<b>2</b>
Applied trumpet instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.53</b>	<b>Applied Music - Principal - Trombone</b>	<b>U</b>	<b>2</b>
Applied trombone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.54</b>	<b>Applied Music - Principal - Euphonium</b>	<b>U</b>	<b>2</b>
Applied euphonium instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.55</b>	<b>Applied Music - Principal - Tuba</b>	<b>U</b>	<b>2</b>
Applied tuba instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.56</b>	<b>Applied Music - Principal - Jazz Trumpet</b>	<b>U</b>	<b>2</b>
Applied jazz trumpet instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.71</b>	<b>Applied Music - Principal - Percussion</b>	<b>U</b>	<b>2</b>
Applied percussion instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.72</b>	<b>Applied Music - Principal - Jazz Percussion</b>	<b>U</b>	<b>2</b>
Applied jazz percussion instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4501.91</b>	<b>Applied Music - Principal - Harp</b>	<b>U</b>	<b>2</b>
Applied harp instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3401 (401), and enrollment in BA in Music. Repeatable to a maximum of 6 cr hrs.			
<b>4502.11</b>	<b>Applied Music - Principal - Piano</b>	<b>U</b>	<b>4</b>
Applied piano instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.12</b>	<b>Applied Music - Principal - Jazz Piano</b>	<b>U</b>	<b>4</b>
Applied jazz piano instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.21</b>	<b>Applied Music - Principal - Voice</b>	<b>U</b>	<b>4</b>
Applied voice instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.31</b>	<b>Applied Music - Principal - Violin</b>	<b>U</b>	<b>4</b>
Applied violin instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			



<b>4502.33</b>	<b>Applied Music - Principal - Cello</b>	<b>U</b>	<b>4</b>
Applied cello instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.34</b>	<b>Applied Music - Principal - Double Bass</b>	<b>U</b>	<b>4</b>
Applied double bass instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.37</b>	<b>Applied Music - Principal - Jazz Guitar</b>	<b>U</b>	<b>4</b>
Applied jazz guitar instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.41</b>	<b>Applied Music - Principal - Flute</b>	<b>U</b>	<b>4</b>
Applied flute instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402), and enrollment in BA in Music. Repeatable to a maximum of 12 cr hrs.			
<b>4502.42</b>	<b>Applied Music (Principal): Oboe</b>	<b>U</b>	<b>4</b>
Applied oboe instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.43</b>	<b>Applied Music (Principal): Clarinet</b>	<b>U</b>	<b>4</b>
Applied clarinet instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.45</b>	<b>Applied Music (Principal): Saxophone</b>	<b>U</b>	<b>4</b>
Applied saxophone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.46</b>	<b>Applied Music (Principal): Bassoon</b>	<b>U</b>	<b>4</b>
Applied bassoon instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.47</b>	<b>Applied Music (Principal): Jazz Saxophone</b>	<b>U</b>	<b>4</b>
Applied jazz saxophone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.51</b>	<b>Applied Music (Principal): Horn</b>	<b>U</b>	<b>4</b>
Applied horn instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.52</b>	<b>Applied Music (Principal): Trumpet</b>	<b>U</b>	<b>4</b>
Applied trumpet instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.53</b>	<b>Applied Music (Principal): Trombone</b>	<b>U</b>	<b>4</b>
Applied trombone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.54</b>	<b>Applied Music (Principal): Euphonium</b>	<b>U</b>	<b>4</b>
Applied euphonium instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.55</b>	<b>Applied Music (Principal): Tuba</b>	<b>U</b>	<b>4</b>
Applied tuba instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.56</b>	<b>Applied Music (Principal): Jazz Trumpet</b>	<b>U</b>	<b>4</b>
Applied jazz trumpet instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.57</b>	<b>Applied Music (Principal): Jazz Trombone</b>	<b>U</b>	<b>4</b>
Applied jazz trombone instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.71</b>	<b>Applied Music (Principal): Percussion</b>	<b>U</b>	<b>4</b>
Applied percussion instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			

<b>4502.72</b>	<b>Applied Music (Principal): Jazz Percussion</b>	<b>U</b>	<b>4</b>
Applied jazz percussion instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4502.91</b>	<b>Applied Music (Principal): Harp</b>	<b>U</b>	<b>4</b>
Applied harp instruction to develop musicianship, performance, and knowledge of music literature. Prereq: 3402 (402). Open only to Music majors. Repeatable to a maximum of 12 cr hrs.			
<b>4505</b>	<b>Junior Recital</b>	<b>U</b>	<b>0</b>
Required junior recital for the Bachelor of Music and Bachelor of Music Education degrees. Prereq: 4501 and 4502. Repeatable to a maximum of 4 completions. This course is graded S/U.			
<b>4510</b>	<b>Jazz Improvisation III</b>	<b>U</b>	<b>2</b>
Advanced techniques of improvisation; the use of modal devices, complex meters, and innovative forms; concern for speed, endurance, energy levels, and problems of unaccompanied performance. Prereq: 3210. Not open to students with credit for 510.			
<b>4524</b>	<b>Orchestration I</b>	<b>U</b>	<b>2</b>
A fundamental course in scoring for the instruments of the orchestra and band in transcriptions and arrangements. Prereq: 3422. Not open to students with credit for 524.			
<b>4531</b>	<b>Elementary Studies in Counterpoint</b>	<b>U</b>	<b>2</b>
A fundamental course in counterpoint including study of the basic principles of 16th-century polyphony. Prereq: 3422. Not open to students with credit for 531.			
<b>4533</b>	<b>Jazz Composition</b>	<b>U</b>	<b>3</b>
Designed to develop the skills necessary for composing/arranging for small, mixed, and large jazz ensembles. Prereq: 3434. Not open to students with credit for 533.			
<b>4535</b>	<b>Composition I</b>	<b>U</b>	<b>2</b>
A fundamental course in composition, with emphasis on creative writing in the small forms. Prereq: 3422. Not open to students with credit for 535.			
<b>4555.01</b>	<b>Studies in Musicology: Music Before 1600</b>	<b>U</b>	<b>3</b>
Introduction to specialized topics and issues in historical musicology and ethnomusicology. Medieval and Renaissance music. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.02</b>	<b>Studies in Musicology: Music from 1600 to 1800</b>	<b>U</b>	<b>3</b>
Introduction to specialized topics and issues in historical musicology and ethnomusicology. Baroque and Classical. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.03</b>	<b>Studies in Musicology: Music from 1800 to the Present</b>	<b>U</b>	<b>3</b>
Introduction to specialized topics and issues in historical musicology and ethnomusicology. Romantic to twenty-first century music. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.05</b>	<b>Studies in Musicology: Music's Meanings</b>	<b>U</b>	<b>2 - 3</b>
A variety of approaches to how music conveys meaning, focusing in particular on the capacity of music to allude to other aspects of human experience, such as dance, storytelling, drama, and visual imagery. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.06</b>	<b>Studies in Musicology: Music Research Methods and Bibliography</b>	<b>U</b>	<b>3</b>
Survey of the methods and materials for conducting research projects in today's interdisciplinary computerized environment. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.07</b>	<b>Studies in Musicology: Introduction to Ethnomusicology</b>	<b>U</b>	<b>2</b>
Introduces students to the development, major topics, and methods in the field of ethnomusicology. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.08</b>	<b>African Music: Ideas Forms and Trajectories</b>	<b>U</b>	<b>3</b>
Introduction to specialized topics and issues in historical musicology and ethnomusicology. African Music. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4555.09</b>	<b>Studies in Musicology: Chinese Music</b>	<b>U</b>	<b>3</b>
This course is an introduction to the history, theory and practice of Chinese music, with special reference to the socio-cultural conditions of its development. Prereq: Admission to BM in Musicology, or permission of instructor.			
<b>4566</b>	<b>Jazz Pedagogy</b>	<b>U</b>	<b>2</b>
Organization and operation of the public school jazz ensemble. Prereq: Not open to students with credit for 566.			

## 336 Music

**4572 Teaching General Music in Secondary Schools U 2**

The role of music in adolescents' general education and the development of competencies essential to teaching.

Prereq: Professional standing in Music Education. Not open to students with credit for 572.

**4574 Teaching Choral Music in Elementary and Middle Schools U 2**

A comprehensive review of choral music methods and rehearsal techniques for young learners. Prereq: Professional standing in Music Education.

**4575 Teaching Choral Music in Secondary Schools U 2**

Choral music rehearsal methods, techniques and strategies for developing choral ensembles in secondary schools.

Prereq: Professional standing in Music Education.

**4576 Teaching Instrumental Music in Elementary and Middle Schools U 2**

The role of instrumental music instruction in education, techniques of teaching instrumental music, study of music appropriate to musical organizations in elementary and middle schools. Prereq: 2261.03 (261.03), 2261.04 (261.42 and 261.46), 2261.07 (261.07), 2262.03 (262.03), 2262.04 (262.04), and 2262.05 (262.05), and professional standing in Music Education. Not open to students with credit for 576.

**4577 Teaching Instrumental Music in Secondary Schools U 2**

The role of instrumental music instruction in public education, techniques of teaching instrumental music, study of music appropriate to musical organizations in secondary schools. Prereq: 2261.03 (261.03), 2261.04 (261.42 and 261.46), 2261.07 (261.07), 2262.03 (262.03), 2262.04 (262.04), and 2262.05 (262.05), and professional standing in Music Education. Not open to students with credit for 576.

**4579 Teaching General Music in Elementary Schools U 2**

A study of Kodaly and intermediate Orff methodologies; the planning and implementation of musical experiences for children in elementary schools.

Prereq: Professional standing in Music Education.

**4586 Student Teaching in Music in Elementary Schools U 6**

Assignment to area elementary schools for teaching observations.

Prereq: Professional standing in Music Education. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**4587 Student Teaching in Music in Secondary Schools U 6**

Assignment to area secondary schools for observation.

Prereq: Professional standing in Music Education. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**4588 Improvisation Methods U 2**

Introduction to musical improvisation in performance and pedagogy. Improvisation in individual and group contexts.

Prereq: 3422, or permission of instructor.

**4601.11 Applied Music (Principal): Piano U 2**

Advanced piano instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open to BME majors only. Repeatable to a maximum of 8 cr hrs.

**4601.21 Applied Music (Principal): Voice U 2**

Advanced voice instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors only. Repeatable to a maximum of 8 cr hrs.

**4601.31 Applied Music (Principal): Violin U 2**

Advanced violin instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.41 Applied Music (Principal): Flute U 2**

Advanced flute instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.43 Applied Music (Principal): Clarinet U 2**

Advanced clarinet instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.46 Applied Music (Principal): Bassoon U 2**

Advanced bassoon instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.47 Applied Music (Principal): Jazz Saxophone U 2**

Advanced jazz saxophone instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.52 Applied Music (Principal): Trumpet U 2**

Advanced trumpet instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.53 Applied Music (Principal): Trombone U 2**

Advanced trombone instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.55 Applied Music (Principal): Tuba U 2**

Advanced tuba instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.56 Applied Music (Principal): Jazz Trumpet U 2**

Advanced jazz trumpet instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4601.91 Applied Music (Principal): Harp U 2**

Advanced harp instruction to develop musicianship, performance, and knowledge of music literature.

Prereq: 4501 (501). Open only to BME majors. Repeatable to a maximum of 8 cr hrs.

**4602.11 Applied Music (Principal): Piano U 4**

Advanced piano instruction to develop professional qualities of musicianship, technique, and literature.

Prereq: 4502 (502). Open to BM majors only. Repeatable to a maximum of 12 cr hrs.

**4602.12 Applied Music - Principal - Jazz Piano U 4**

Advanced jazz piano instruction to develop professional qualities of musicianship, technique, and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.21 Applied Music - Principal - Voice U 4**

Advanced voice instruction to develop professional qualities of musicianship, technique, and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.31 Applied Music - Principal - Violin U 4**

Advanced violin instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.33 Applied Music - Principal - Cello U 4**

Advanced cello instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.34 Applied Music - Principal - Double Bass U 4**

Advanced double bass instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.36 Applied Music - Principal - Jazz Bass U 4**

Advanced jazz bass instruction to develop professional qualities of musicianship, technique, and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.37 Applied Music (Principal): Jazz Guitar U 4**

Advanced jazz guitar instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.41 Applied Music - Principal - Flute U 4**

Advanced flute instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.42 Applied Music - Principal - Oboe U 4**

Advanced oboe instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.43 Applied Music - Principal - Clarinet U 4**

Advanced clarinet instruction to develop professional qualities of musicianship, technique and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

**4602.45 Applied Music - Principal - Saxophone U 4**

Advanced saxophone instruction to develop professional qualities of musicianship, technique, and literature.

Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.

<b>4602.46</b>	<b>Applied Music - Principal - Bassoon</b>	<b>U</b>	<b>4</b>
Advanced bassoon instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.47</b>	<b>Applied Music - Principal - Jazz Saxophone</b>	<b>U</b>	<b>4</b>
Advanced jazz saxophone instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.51</b>	<b>Applied Music - Principal - Horn</b>	<b>U</b>	<b>4</b>
Advanced horn instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.52</b>	<b>Applied Music - Principal - Trumpet</b>	<b>U</b>	<b>4</b>
Advanced trumpet instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.53</b>	<b>Applied Music - Principal - Trombone</b>	<b>U</b>	<b>4</b>
Advanced trombone instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.54</b>	<b>Applied Music - Principal - Euphonium</b>	<b>U</b>	<b>4</b>
Advanced euphonium instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.55</b>	<b>Applied Music - Principal - Tuba</b>	<b>U</b>	<b>4</b>
Advanced tuba instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.56</b>	<b>Applied Music - Principal - Jazz Trumpet</b>	<b>U</b>	<b>4</b>
Advanced jazz trumpet instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.57</b>	<b>Applied Music - Principal - Jazz Trombone</b>	<b>U</b>	<b>4</b>
Advanced jazz trombone instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.71</b>	<b>Applied Music - Principal - Percussion</b>	<b>U</b>	<b>4</b>
Advanced percussion instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.72</b>	<b>Applied Music - Principal - Jazz Percussion</b>	<b>U</b>	<b>4</b>
Advanced jazz percussion instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4602.91</b>	<b>Applied Music - Principal - Harp</b>	<b>U</b>	<b>4</b>
Advanced harp instruction to develop professional qualities of musicianship, technique, and literature. Prereq: 4502 (502), and enrollment in BM major. Repeatable to a maximum of 12 cr hrs.			
<b>4605</b>	<b>Senior Recital</b>	<b>U</b>	<b>0</b>
Required senior recital for the Bachelor of Music in Performance degree. Prereq: 4602. Repeatable to a maximum of 4 completions. This course is graded S/U.			
<b>4611</b>	<b>Piano Pedagogy I</b>	<b>U</b>	<b>3</b>
An analysis of teaching techniques and materials for individual and group instruction in piano with an emphasis on the elementary and intermediate levels. Prereq: 4501.11 (501.11), or permission of instructor. Not open to students with credit for 611.			
<b>4665</b>	<b>Arranging for the Music Educator</b>	<b>U</b>	<b>2</b>
This class is designed for all music education majors who would like to be able to create custom music arrangements and custom edited parts for their future students. Prereq: 2220, 2263.01, 3421, and 3424.			
<b>4679.01</b>	<b>Music Theory Senior Project</b>	<b>U</b>	<b>2</b>
Preparation of senior paper and presentation of paper. Prereq: Music Theory major, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4679.02</b>	<b>Composition Senior Project</b>	<b>U</b>	<b>2</b>
Preparation of senior composition and half recital of student's composition. Prereq: Music Composition major, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			

<b>4679.03</b>	<b>Senior Composition Project: Jazz Studies</b>	<b>U</b>	<b>2</b>
Preparation of senior composition and half recital of student's composition. Prereq: Jazz Composition major, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4679.04</b>	<b>Senior Thesis: Musicology</b>	<b>U</b>	<b>2</b>
Preparation of senior thesis paper; presentation of senior thesis. Prereq: Musicology major, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4679.05</b>	<b>Senior Pedagogy Project</b>	<b>U</b>	<b>2</b>
Senior project in Music Pedagogy. Prereq: Enrollment in a performance major, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4679.06</b>	<b>Senior Project - B.S.</b>	<b>U</b>	<b>2</b>
In this course, students will demonstrate competency in applying creativity, problem solving and critical analysis. Students earn credit by proposing, developing, and completing an independent project. Prereq: Music (BS) major and permission of instructor. This course is graded S/U.			
<b>4998</b>	<b>Undergraduate Research Non-Thesis</b>	<b>U</b>	<b>1 - 5</b>
Research projects determined by instructor. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 4 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 5</b>
Research projects determined by thesis subject. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 5</b>
Research projects determined by thesis subject. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions.			
<b>5177</b>	<b>Alexander Technique</b>	<b>U G</b>	<b>1 - 2</b>
The relationship of kinesthetic perception and the postural reflexes to physical coordination in performance. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. Cross-listed in Dance and Theatre.			
<b>5187</b>	<b>Advanced Alexander Technique</b>	<b>U G</b>	<b>1 - 2</b>
Advanced study in Alexander Technique. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group study of various topics in music. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>5313</b>	<b>Opera Chorus</b>	<b>U G</b>	<b>3</b>
A selected group of mixed voices which rehearses and performs selected operatic repertoire in conjunction with the OSU Opera. Instruction and experience in preparation for opera performance, including study of operatic choral literature. Prereq: Audition and permission of the Director of Opera or the Director of Choral Activities. Repeatable to a maximum of 15 cr hrs.			
<b>5415</b>	<b>Diction for Choral Music Educators</b>	<b>U G</b>	<b>2</b>
Offers a survey of lyric diction to acquaint future singers, teachers, and choral conductors with basic concepts and skills for the English, German, French, Latin, and Italian languages. Students will review the rules and symbols of the International Phonetic Alphabet (IPA). Prereq: Open to Music Education majors and graduate choral conducting students.			
<b>5591</b>	<b>Career Development in Music</b>	<b>U G</b>	<b>3</b>
Survey of music marketplace, opportunities, and career strategies. Prereq: Open to Music majors only. Not open to students with credit for 591.			
<b>5603.01</b>	<b>Topics in Percussion: Instrument Repair and Logistics</b>	<b>U G</b>	<b>2</b>
Study of the numerous ways to repair various percussion instruments. Types of instruments and their manufacturers. Prereq: Enrollment in Music major with a specialization in percussion.			
<b>5603.02</b>	<b>Drum Set: Technique, Styles and History</b>	<b>U G</b>	<b>2</b>
Explore and obtain performance skills, concepts and historical knowledge pertaining to the drum set. Prereq: Enrollment in Music major with a specialization in classical percussion.			
<b>5603.03</b>	<b>Hand Drumming: Global Percussion</b>	<b>U G</b>	<b>2</b>
Explore and obtain basic performance skills and concepts with various hand drumming techniques from around the world. Prereq: Enrollment in Music major with a specialization in classical percussion.			
<b>5604</b>	<b>Introduction to Piano Technology</b>	<b>U G</b>	<b>1</b>
To provide the pianist and piano enthusiast a cursory understanding of the construction and maintenance of their instrument.			

## 338 Music

<b>5607</b>	<b>Performance Enhancement I</b>	<b>U G</b>	<b>1</b>
Skills and techniques designed to enhance the quality of public performances. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			
<b>5608</b>	<b>Performance Enhancement II</b>	<b>U G</b>	<b>1</b>
Advanced skills and techniques designed to enhance the quality of public performances. Prereq: 5607 (607), or permission of instructor. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			
<b>5620</b>	<b>Extended Tonality from Wagner to Hindemith: Theory and Analysis</b>	<b>U G</b>	<b>2</b>
Systematic analytic observation of tonal art music from the last decades of the nineteenth century to World War II. Prereq: 3422. Not open to students with credit for 620.			
<b>5621</b>	<b>Theory and Analysis: 17th-18th Centuries</b>	<b>U G</b>	<b>2</b>
Analysis of representative works from the 17th-18th century, introducing relevant theoretical concepts. Prereq: 3422, or a score in the upper third on the graduate placement exam. Not open to students with credit for 621.			
<b>5622</b>	<b>Theory and Analysis: 19th Century</b>	<b>U G</b>	<b>2</b>
Analysis of representative works from the 19th century, introducing relevant theoretical concepts. Prereq: 3422, or a score in the upper third on the graduate placement exam. Not open to students with credit for 622.			
<b>5623</b>	<b>Theory and Analysis: 20th Century</b>	<b>U G</b>	<b>2</b>
Analysis of representative works from the 20th century, introducing relevant theoretical concepts. Prereq: 3422, or a score in the upper third on the graduate placement exam. Not open to students with credit for 623.			
<b>5625</b>	<b>Orchestration II</b>	<b>U G</b>	<b>2</b>
Study of 20th-century orchestral techniques, including readings in recent literature on timbre and timbre perception; scoring of transcriptions and students' compositions for various ensembles. Prereq: 4524. Not open to students with credit for 625.			
<b>5630</b>	<b>Composers Seminar</b>	<b>U G</b>	<b>2</b>
Contemporary topics in composition and theory; presentation, performance, and criticism of student compositions and papers. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>5631</b>	<b>Intermediate Studies in Counterpoint</b>	<b>U G</b>	<b>2</b>
Counterpoint based on the polyphonic style of the 18th century. Prereq: 4531, or permission of instructor. Not open to students with credit for 631.			
<b>5635</b>	<b>Composition II</b>	<b>U G</b>	<b>2 - 3</b>
Practice in creative writing; analysis, and evaluation; employment of contemporary methods of composition. Prereq: 4535, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>5636.01</b>	<b>Introduction to Electronic Music Synthesis</b>	<b>U G</b>	<b>3</b>
Techniques of composition with electronic media, history, literature, and criticism; score preparation. Prereq: 3422, or permission of instructor. Not open to students with credit for 636.			
<b>5636.02</b>	<b>Electronic Music Synthesis</b>	<b>U G</b>	<b>3</b>
Principles of audio engineering, relationships to other communications media. Prereq: 5636.01, or permission of instructor. Not open to students with credit for 636.			
<b>5637.01</b>	<b>Composition with Electronic Media I</b>	<b>U G</b>	<b>3</b>
Individual composition projects with electronic media. Prereq: 4535 and 5636.02. Repeatable to a maximum of 18 cr hrs.			
<b>5637.02</b>	<b>Composition with Electronic Media II</b>	<b>U G</b>	<b>3</b>
Individual advanced composition projects with electronic media. Prereq: 5637.01. Repeatable to a maximum of 18 cr hrs.			
<b>5638</b>	<b>Audio Recording</b>	<b>U G</b>	<b>3</b>
Audio recording; microphones and microphone placement; multiple-track recording; mixing; equalization and special effects. Prereq: Course work in Circuit Analysis from Electric Engineering or equiv, or permission of instructor. Not open to students with credit for 638.			
<b>5639</b>	<b>Audio Recording Laboratory</b>	<b>U G</b>	<b>3</b>
Creating an audio recording; familiarity with the recording studio and console, use and placement of microphones; multiple-track recording equalization and special effects; mixing. Prereq: 5638, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5646</b>	<b>History of Music in the United States</b>	<b>U G</b>	<b>2</b>

A survey of music in the United States from colonial times until the present. Prereq: Jr, Sr, or Grad standing. Not open to students with credit for 646.

<b>5648</b>	<b>Western Art Music I</b>	<b>U G</b>	<b>2</b>
A survey focused on repertory and historical issues, with principal emphasis on instrumental genres. Music from 1700 to early 20th century. Prereq: 2241, and Grad standing, and enrollment in Music major. Not open to students with credit for 648.			
<b>5650</b>	<b>History of Choral Music</b>	<b>U G</b>	<b>2</b>
Survey of the history and stylistic development of choral music. Prereq: 2242; or Grad standing, and enrollment in Music major. Not open to students with credit for 650.			
<b>5651</b>	<b>History of Opera</b>	<b>U G</b>	<b>2</b>
Survey of the history and stylistic development of opera. Prereq: 2242, or Grad standing in Music. Not open to students with credit for 651.			
<b>5652</b>	<b>18th- and 19th-Century Song Literature</b>	<b>U G</b>	<b>2</b>
Study of selected 18th and 19th century song literature. Prereq: 3422 and 2242, or 2243.02; or Grad standing. Not open to students with credit for 652.			
<b>5653.01</b>	<b>Piano Literature I</b>	<b>U G</b>	<b>3</b>
A study of the formal structures of piano literature from the pre-piano period through the works of Beethoven. Prereq: 3422. Not open to students with credit for 653.			
<b>5653.02</b>	<b>Piano Literature II</b>	<b>U G</b>	<b>3</b>
A study of the piano sonata and other characteristic forms from post-Beethoven to the present time. Prereq: 3422. Not open to students with credit for 653.			
<b>5655</b>	<b>20th- and 21st-Century Song Literature</b>	<b>U G</b>	<b>2</b>
The study of selected 20th and 21st century song literature. Prereq: 5652, or Grad standing. Not open to students with credit for 655.			
<b>5663</b>	<b>School Orchestra Literature</b>	<b>U G</b>	<b>2</b>
Examines orchestral repertoire for study in elementary, middle, and high school orchestra programs, and develops strategies for teaching these pieces. Prereq: Enrollment in Music major. Not open to students with credit for 663.			
<b>5664</b>	<b>School Wind Band Repertoire</b>	<b>U G</b>	<b>2</b>
Examines wind band repertoire appropriate for study in elementary, middle and high school band programs and develops strategies for teaching these pieces. Prereq: Enrollment in Music major. Not open to students with credit for 664.			
<b>5666</b>	<b>Marching Band Techniques</b>	<b>U G</b>	<b>2</b>
A study of the marching band including laboratory work in marching techniques, computerized charting, and show design. Prereq: Soph, Jr, or Sr standing, and enrollment in Music major, or permission of instructor. Not open to students with credit for 666.			
<b>5677.01</b>	<b>Multimedia for Musicians I</b>	<b>U G</b>	<b>3</b>
Designed to provide musicians with the tools to create multimedia works for use in music education, research, or as a creative medium. Prereq: 2220 (220) or 5676 (676), or permission of instructor. Not open to students with credit for 677.			
<b>5765</b>	<b>Literature for Vocal Music Education</b>	<b>U G</b>	<b>2</b>
A study of vocal literature of various cultures and historic periods for use with choral groups in the secondary music program. Prereq: 4575 (575); or Grad Standing, and enrollment in Music major. Not open to students with credit for 765.			
<b>5772</b>	<b>Music in Early Childhood</b>	<b>U G</b>	<b>3</b>
Analysis of research, principles, and practices in early childhood music and application to programs of learning for young children. Prereq: Permission of instructor. Not open to students with credit for 772.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 12</b>
An opportunity to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of dept chair. Repeatable to a maximum of 72 cr hrs or 6 completions. This course is progress graded.			
<b>5798</b>	<b>Study Tour</b>	<b>U G</b>	<b>1 - 3</b>
Specialized academic or performance study tour. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Independent study on a special problem or topic in music. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>6200.11</b>	<b>Applied Music (Secondary): Piano</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on piano with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			

<b>6200.12</b>	<b>Applied Lesson (Secondary): Jazz Piano</b>	<b>G</b>	<b>2</b>
Applied jazz piano study with special emphasis on literature and pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.21</b>	<b>Applied Music (Secondary): Voice</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on voice with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.31</b>	<b>Applied Music (Secondary): Violin</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on violin with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.32</b>	<b>Applied Music (Secondary): Viola</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on viola with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.33</b>	<b>Applied Music (Secondary): Cello</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on cello with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is available for EM credit.			
<b>6200.34</b>	<b>Applied Music (Secondary): Double Bass</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on double bass with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.41</b>	<b>Applied Music (Secondary): Flute</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on flute with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.43</b>	<b>Applied Music (Secondary): Clarinet</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on clarinet with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.45</b>	<b>Applied Music - Secondary - Saxophone</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on saxophone with an emphasis on pedagogy. Prereq: Grad standing in Music, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.47</b>	<b>Applied Music (Secondary): Jazz Saxophone</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on jazz saxophone with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.53</b>	<b>Applied Music (Secondary): Trombone</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on trombone with emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.54</b>	<b>Applied Music (Secondary): Euphonium</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on euphonium with emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.55</b>	<b>Applied Music (Secondary): Tuba</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on tuba with emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.56</b>	<b>Applied Music (Secondary): Jazz Trumpet</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on jazz trumpet with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6200.57</b>	<b>Applied Music (Secondary): Jazz Trombone</b>	<b>G</b>	<b>2</b>
Secondary applied music instruction on jazz trombone with an emphasis on pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6216.12</b>	<b>Applied Music (Non Major): Jazz Piano</b>	<b>G</b>	<b>2</b>
Applied jazz piano study with special emphasis on literature and pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6216.21</b>	<b>Applied Music (Non Major): Voice</b>	<b>G</b>	<b>2</b>
Applied voice study with special emphasis on literature and pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6216.34</b>	<b>Applied Music (Non Major): Double Bass</b>	<b>G</b>	<b>2</b>
Applied double bass study with special emphasis on literature and pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6216.41</b>	<b>Applied Music (Non Major): Flute</b>	<b>G</b>	<b>2</b>
Applied flute study with special emphasis on literature and pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6216.42</b>	<b>Applied Music (Non Major): Oboe</b>	<b>G</b>	<b>2</b>
Applied oboe study with special emphasis on literature and pedagogy. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6645</b>	<b>Music's Meanings</b>	<b>G</b>	<b>2 - 3</b>
An exploration of approaches to ways that music conveys meaning. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 645.			

<b>6672</b>	<b>Introduction to Ethnomusicology</b>	<b>G</b>	<b>2</b>
The study of different ways in which music has been used outside the western European tradition of the fine arts. Prereq: Grad standing in Musicology, or permission of instructor. Not open to students with credit for 672.			
<b>6710</b>	<b>Introduction to Operatic Stage Techniques</b>	<b>G</b>	<b>3</b>
An introduction to stage movement techniques, character analysis, role preparation, and aria interpretation as applied to the operatic stage. Prereq: Grad standing. Repeatable to a maximum of 18 cr hrs.			
<b>6752</b>	<b>Arts in Urban Contexts</b>	<b>G</b>	<b>3</b>
The course will focus on community organizations in which artists engage with youth to encourage self expression, contributions to the community, and explore creative approaches to social change. Participants will explore dynamics of leadership, creativity, demographics, and educational strategies that are employed in such organizations. Prereq: Grad standing.			
<b>6786</b>	<b>Music Research Methods and Bibliography</b>	<b>G</b>	<b>3</b>
Survey of the methods and materials for conducting research projects in music in today's interdisciplinary computerized environment. Prereq: Grad standing. Not open to students with credit for 786.			
<b>6812</b>	<b>Graduate Voice Diction and Repertoire Coaching</b>	<b>G</b>	<b>2</b>
Coaching the singer in the authentic sound production of the Italian, French, German, and Russian languages. Prereq: Grad standing in Voice. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.			
<b>6835</b>	<b>Composition III</b>	<b>G</b>	<b>2 - 3</b>
Creative writing at the masters level. Prereq: 5635 (635). Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>6837</b>	<b>Composition with Electronic Media III</b>	<b>G</b>	<b>3</b>
Advanced composition using electronically generated sound material. Prereq: 5637.01 and 5637.02. Repeatable to a maximum of 15 cr hrs.			
<b>6881</b>	<b>Graduate Conducting Seminar</b>	<b>G</b>	<b>1</b>
Discussion in a seminar setting of issues related to the conducting of literature for choral, orchestral, and/or wind ensembles. Prereq: Grad standing, and/or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>6895</b>	<b>Seminar in Music</b>	<b>G</b>	<b>1 - 3</b>
Colloquia, workshops, and special topics seminars in music. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			
<b>6998</b>	<b>Master's Research Non-Thesis</b>	<b>G</b>	<b>1 - 3</b>
Research projects determined by instructor. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>6999</b>	<b>Research for Master's Thesis</b>	<b>G</b>	<b>1 - 6</b>
Research projects determined by thesis subject. Repeatable to a maximum of 36 cr hrs or 6 completions. This course is graded S/U.			
<b>7194</b>	<b>Graduate Group Studies</b>	<b>G</b>	<b>1 - 3</b>
A specialized topic in music taught in a group setting. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>7203.01</b>	<b>Chorale</b>	<b>G</b>	<b>1 - 2</b>
Study and performance of advanced choral repertoire. Prereq: Audition and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>7203.02</b>	<b>Symphonic Choir</b>	<b>G</b>	<b>1 - 2</b>
Study and performance of intermediate choral repertoire. Prereq: Audition and permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			
<b>7203.03</b>	<b>University Chorus</b>	<b>G</b>	<b>1 - 2</b>
Study and performance of beginning choral repertoire. Prereq: Audition and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>7203.04</b>	<b>Men's Glee Club</b>	<b>G</b>	<b>1 - 2</b>
Study and performance of advanced repertoire for men's chorus. Prereq: Audition and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>7203.05</b>	<b>Women's Glee Club</b>	<b>G</b>	<b>1 - 2</b>
Study and performance of advanced repertoire for women's chorus. Prereq: Audition and permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			

## 340 Music

**7204.01 Wind Symphony** G 1 - 2

Study and performance of repertoire appropriate for wind ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7204.02 Symphonic Band** G 1 - 2

Study and performance of repertoire for symphonic band.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7204.03 Collegiate Winds** G 1 - 2

Study and performance of repertoire determined by specific ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7204.04 University Band** G 1 - 2

Study and performance of repertoire determined by specific ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7205.01 Univ. Marching Band** G 1 - 2

Study and performance of repertoire for marching band.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7205.02 Athletic Band** G 1 - 2

Study and performance of repertoire for athletic band.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7206.01 Jazz Ensemble** G 1 - 2

Study and performance of repertoire determined by specific ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7206.02 Jazz Lab Ensemble** G 1 - 2

Study and performance of repertoire determined by specific ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7207.01 Percussion Ensemble** G 1

Study and performance of repertoire determined by specific percussion ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7208.03 Small Ensemble: Strings** G 1

Study and performance of repertoire determined by specific string ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7208.04 Small Ensemble: Woodwinds** G 1

Study and performance of repertoire determined by specific woodwind ensemble.  
Prereq: Grad standing, audition, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7208.05 Small Ensemble: Brass** G 1

Study and performance of repertoire determined by specific brass ensemble.  
Prereq: Grad standing, audition, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7208.06 Small Ensemble: Jazz Combo** G 1

Study and performance of repertoire determined by specific jazz ensemble.  
Prereq: Grad standing, audition, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7208.16 Small Ensemble: Gospel Choir** G 1

Study and performance of gospel and spiritual choir literature for mixed chorus.  
Repeatable to a maximum of 10 cr hrs.

**7208.80 Sonic Arts Ensemble** G 1

Sonic Arts Ensemble is an ensemble - based course focused on the use of the computer and/or electronic technologies in music performance and music composition, along with the development of new technologies (software and hardware) for sonic arts performance.  
Prereq: Admission by audition. Repeatable to a maximum of 10 cr hrs.

**7208.99 Small Ensemble: Miscellaneous** G 1

Study and performance of repertoire determined by specific ensemble.  
Prereq: Audition and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7215.01 University Symphony Orchestra** G 1 - 2

The University Orchestra is an 85-piece orchestra of full instrumentation devoted to the preparation of standard and modern literature.  
Prereq: Admission by audition. Repeatable to a maximum of 24 cr hrs or 12 completions.

**7612 Piano Pedagogy III** G 3

An analysis of the development of piano technique through readings in pedagogical treatises and applications in standard piano repertoire from various style periods.  
Prereq: 7611. Not open to students with credit for 613.

**7715 Structure and Function of the Singing Mechanism** G 3

Anatomy and acoustics of the voice as they relate to developmental vocal pedagogy.  
Prereq: Grad standing. Not open to students with credit for 715.

**7727 Keyboard Harmony for Graduate Students** G 2 - 3

Application of keyboard musicianship, including sight reading, harmonization of melodies, improvisation, transposition, realization of figured bass and modulation.  
Prereq: 2264.01 (264.01), 3422 (422), or equivalent with permission of instructor. Not open to students with credit for 727.

**7730 Introduction to Musicology** G 3

Introduction to the materials, issues and methodologies of musicology. An introduction to musicology focused on sounding music and music contexts.  
Prereq: Grad standing, or permission of instructor. Not open to students with credit for 730.01 or 730.02.

**7740 Studies in Music before 1600** G 3

Introduction to scholarly issues in the music of the Middle Ages and the Renaissance.  
Prereq: 2243 (243) or equiv, 4531 (531) or equiv; and grad standing. Not open to students with credit for 740 or 741.

**7742 Studies in Music from 1800 to the Present** G 3

Introduction to scholarly issues in the music from the Romantic era to the 21st century.  
Prereq: 2243 (243) or equiv, 4531 (531) or equiv; and grad standing. Not open to students with credit for 744 or 745.

**7754 Midwest Summer String Teachers Seminar** G 2

Seminar on current materials, music, assessment procedures, and strategies for teaching string/orchestra in the schools.  
Prereq: Undergrad degree in Music. Repeatable to a maximum of 20 cr hrs.

**7760 Basic Concepts in Music Education** G 3

The principles of music education and of the educational and cultural objectives derived from related disciplines which give direction and purpose to the music education program.  
Prereq: 4586 (586) or 4587 (587), or equivalent. Not open to students with credit for 760.

**7764 Principles and Practices in Vocal Music Education** G 2

Analysis and appraisal of the organization, purpose, and development of the vocal music program in secondary schools.  
Prereq: 4575 (575). Not open to students with credit for 764.

**7770 Introduction to Research in Music Education** G 3

A study of methods of research as applied to problems in school music.  
Prereq: 4586 (586), 4587 (587), or equivalent. Not open to students with credit for 770.

**7780.05 Piano Accompanying Practicum** G 1 - 2

Study of skills needed for success as a collaborative pianist.  
Prereq: Grad standing in Piano, or permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions.

**7780.11 Opera Scenes** G 3

Performance ensemble class devoted to rehearsing and performing scenes from operatic literature.  
Prereq: 6710 (710), and admission by audition; or permission of instructor. Repeatable to a maximum of 24 cr hrs.

**7780.12 Opera Performance** G 3

Performance ensemble class devoted to the rehearsing and performance of full length operas; advanced rehearsal and performance techniques of operatic literature.  
Prereq: 6710 (710), and admission by audition; or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**7780.20 African Performing Ensemble** G 1

Study and performance of repertoire determined by specific ensemble.  
Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

**7780.22 Andean Music Ensemble** G ½ - 1

In this course students learn to play and perform music from Bolivia, Peru, Ecuador, Chile, Colombia and Argentina. The course explores various musical genres within the Andean region. Students study techniques and methods for playing Andean instruments and learn to sing in Spanish, Quechua and Aymara.  
Repeatable to a maximum of 10 cr hrs or 10 completions. Cross-listed in Spanish.

**7784 Bibliography for Musicologists** G 3

Intensive survey of bibliographic methods and materials in music research.  
Prereq: Grad standing in musicology.

**7785 Cognitive Ethnomusicology** G 3

Topics and issues in historical musicology and ethnomusicology.  
Prereq: Grad standing.

**7787 Chinese Music** G 3

History theory and practices of Chinese music culture with special reference to the socio-cultural conditions of their development.  
Prereq: Grad standing. Not open to students with credit for 787.01.

<b>7788</b>	<b>Music of the Arab and Indian Traditions</b>	<b>G</b>	<b>3</b>
History theory and practices of Arab and Indian music cultures with special reference to the socio-cultural conditions of their development. Prereq: Grad standing. Not open to students with credit for 787.02 or 787.03.			
<b>7789</b>	<b>African Music: Ideas Forms and Trajectories</b>	<b>G</b>	<b>3</b>
Examination of compositional choices and performance conventions in selected musical traditions from Africa. Prereq: 2251 (251), 6672, or AfAm&Ast equivalent; and Grad standing, or permission of instructor. Not open to students with credit for 789 or AfAmAst 789.			
<b>7791</b>	<b>Problems in Instrumental Music Education</b>	<b>G</b>	<b>3</b>
Study of the problems encountered in teaching supervising and organization of the instrumental music program. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>7801.11</b>	<b>Applied Music Principal Piano</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied piano study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in Piano Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7801.21</b>	<b>Applied Music Principal Voice</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied voice study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in Voice Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7801.31</b>	<b>Applied Music Principal Violin</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied violin study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in String Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7801.32</b>	<b>Applied Music Principal Viola</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied viola study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in String Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7801.33</b>	<b>Applied Music Principal Cello</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in String Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7801.42</b>	<b>Applied Music Principal Oboe</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied oboe study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in Woodwind Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7801.45</b>	<b>Applied Music Principal Saxophone</b>	<b>G</b>	<b>2 - 4</b>
Advanced applied saxophone study with emphasis on musicianship, pedagogical techniques, and literature. Prereq: Enrollment in Master of Arts in Woodwind Pedagogy program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.11</b>	<b>Applied Music - Major - Piano</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and techniques of piano performance. Prereq: Enrollment in Master of Music degree program in piano program. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.21</b>	<b>Applied Music - Major - Voice</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and techniques of vocal performance. Prereq: Enrollment in Masters of Music program in Voice. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.31</b>	<b>Applied Music - Major - Violin</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on violin. Prereq: Enrollment in Master of Music program in String Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.32</b>	<b>Applied Music - Major - Viola</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on viola. Prereq: Enrollment in Master of Music program in String Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.33</b>	<b>Applied Music - Major - Cello</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on cello. Prereq: Enrollment in Master of Music program in String Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.34</b>	<b>Applied Music - Major - Double Bass</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on Double Bass. Prereq: Enrollment in Master of Music program in String Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			

<b>7802.41</b>	<b>Applied Music - Major - Flute</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on flute. Prereq: Enrollment in Master of Music program in Woodwind Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.42</b>	<b>Applied Music - Major - Oboe</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on oboe. Prereq: Enrollment in Master of Music program in Woodwind Performance. Repeatable to a maximum of 24 cr hrs.			
<b>7802.43</b>	<b>Applied Music - Major - Clarinet</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on clarinet. Prereq: Enrollment in Master of Music program in Woodwind Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.45</b>	<b>Applied Music - Major - Saxophone</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on saxophone. Prereq: Enrollment in Master of Music program in Woodwind Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.46</b>	<b>Applied Music - Major - Bassoon</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on bassoon. Prereq: Enrollment in Master of Music program in Woodwind Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.51</b>	<b>Applied Music - Major - Horn</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on horn. Prereq: Enrollment in Master of Music program in Brass Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.52</b>	<b>Applied Music - Major - Trumpet</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on trumpet. Prereq: Enrollment in Master of Music program in Brass Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.53</b>	<b>Applied Music - Major - Trombone</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques on trombone. Prereq: Enrollment in Master of Music program in Brass Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.55</b>	<b>Applied Music - Major - Tuba</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques for tuba. Prereq: Enrollment in Master of Music program in Brass Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7802.71</b>	<b>Applied Music - Major - Percussion</b>	<b>G</b>	<b>2 - 4</b>
A specialized and intense study of the literature and performance techniques for percussion. Prereq: Enrollment in Master of Music program in Percussion Performance. Repeatable to a maximum of 24 cr hrs or 6 completions.			
<b>7803.01</b>	<b>Choral Conducting</b>	<b>G</b>	<b>2</b>
Specialization and intense study of choral conducting techniques. Prereq: Placement exam. Open only to conducting majors in the MM curriculum. Repeatable to a maximum of 8 cr hrs.			
<b>7803.02</b>	<b>Orchestral Conducting</b>	<b>G</b>	<b>2</b>
Specialization and intense study of orchestral conducting techniques. Prereq: Placement exam. Open only to Conducting majors in the MM curriculum. Repeatable to a maximum of 8 cr hrs.			
<b>7803.03</b>	<b>Wind Conducting</b>	<b>G</b>	<b>2</b>
Specialization and intense study of band conducting techniques. Prereq: Placement exam. Open only to Conducting majors in the MM curriculum. Repeatable to a maximum of 8 cr hrs.			
<b>7805.01</b>	<b>Masters Thesis Recital</b>	<b>G</b>	<b>2</b>
Preparation and presentation of musical literature in solo performance. Prereq: Grad standing in the School of Music, and permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>7805.02</b>	<b>Masters Degree Recital: Concerto</b>	<b>G</b>	<b>2</b>
Preparation and presentation of repertoire from the concerto literature. Prereq: Grad standing in the School of Music, and permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>7810.11</b>	<b>Practicum in Teaching Applied Piano</b>	<b>G</b>	<b>3</b>
A critical analysis of various methods, principles, practices, and materials current in teaching applied music. Prereq: 5613, and Grad standing. Repeatable to a maximum of 6 cr hrs.			
<b>7810.21</b>	<b>History and Practice of Voice Pedagogy</b>	<b>G</b>	<b>3</b>
An analysis of the principles and current practices in the teaching of voice. Prereq: 5615 (615), Grad standing, and minimum 6 hrs applied voice. Repeatable to a maximum of 6 cr hrs.			

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<b>7810.30</b>	<b>Music Pedagogy: String Instruments</b>	<b>G</b>	<b>3</b>
A critical analysis of various methods, principles, practices, and materials current in teaching applied music. Prereq: Grad standing, and enrollment in Music program, and minimum 6 hours in applied string instruction. Repeatable to a maximum of 6 cr hrs.			
<b>7810.40</b>	<b>Music Pedagogy: Woodwind Instruments</b>	<b>G</b>	<b>3</b>
A critical analysis of various methods, principles, practices, and materials current in teaching applied music. Prereq: Grad standing, and enrollment in Music program, and minimum 6 hours of applied woodwind instruction. Repeatable to a maximum of 6 cr hrs.			
<b>7810.50</b>	<b>Music Pedagogy: Brass Instruments</b>	<b>G</b>	<b>3</b>
A critical analysis of various methods, principles, practices, and materials current in teaching applied music. Prereq: Grad standing, and enrollment in Music program, and minimum of 6 hours of applied brass instruction. Repeatable to a maximum of 6 cr hrs.			
<b>7815</b>	<b>Seminar for Singing Health Specialists</b>	<b>G</b>	<b>2</b>
Required seminar for candidates in the Singing Health Specialization to enable coordination of skills, concepts, and practices necessary for successful SHS certification. Prereq: Admission to Singing Health Specialization. Not open to students with credit for 815 or SphHrng 7815 (815). Cross-listed in SphHrng.			
<b>7829.01</b>	<b>Scale Theory: Transformation and Tonality</b>	<b>G</b>	<b>3</b>
Formal approaches to the theory of musical scales, with the premise that the distinct subfields of theory and transformational theory speak to fundamental questions of tonality. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs.			
<b>7829.03</b>	<b>Compositional Modeling and Musical Allusion</b>	<b>G</b>	<b>3</b>
Analysis of possible instances of composers who used the work of predecessor as models; interaction in such cases with notions of musical allusion. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs.			
<b>7829.05</b>	<b>Special Topics in Theory</b>	<b>G</b>	<b>3</b>
Critical examination of major contemporary theoretical viewpoints; concepts of theory construction; topics will vary each semester. Prereq: Grad standing. Repeatable to a maximum of 18 cr hrs.			
<b>7835</b>	<b>Composition IV</b>	<b>G</b>	<b>2 - 3</b>
Creative writing of large forms at an advanced level. Prereq: 6835 or equivalent. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>7852.01</b>	<b>Performance Literature: Piano</b>	<b>G</b>	<b>2</b>
Intensive study of representative piano literature from each style period. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7852.02</b>	<b>Performance Literature: Voice</b>	<b>G</b>	<b>2</b>
Intensive study of representative voice literature from each style period. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 16 cr hrs.			
<b>7852.03</b>	<b>Performance Literature: Strings</b>	<b>G</b>	<b>2</b>
Intensive study of representative string literature from each style period. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7852.04</b>	<b>Performance Literature: Woodwinds</b>	<b>G</b>	<b>2</b>
Intensive study of representative woodwind literature from each style period. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7852.05</b>	<b>Performance Literature: Brass</b>	<b>G</b>	<b>2</b>
Intensive study of representative brass literature from each style period. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7852.07</b>	<b>Performance Literature: Percussion</b>	<b>G</b>	<b>2</b>
Intensive study of representative percussion literature from each style period. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>7905</b>	<b>Doctoral Preliminary Recital</b>	<b>G</b>	<b>2</b>
Intended for the graduate student who is preparing for the preliminary doctoral recital. Prereq: Grad standing, and permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Independent study on a special problem or topic in music. Prereq: Doctoral standing, and permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>8810.31</b>	<b>String Pedagogy for Applied Teaching</b>	<b>G</b>	<b>3</b>
Examination of pedagogy and repertoire for teaching beginning and intermediate string instrument lessons in an applied studio. Prereq: Grad standing, and enrollment in Music program. Not open to students with credit for 810.31.			
<b>8810.32</b>	<b>Pedagogy for Beginning Lower Strings</b>	<b>G</b>	<b>3</b>
Examination of pedagogy and instructional materials designed to teach first and second year cello and bass playing skills. Prereq: Music major enrolled in the Master of Arts String Pedagogy degree program. Not open to students with credit for 810.32.			

<b>8810.33</b>	<b>Pedagogy for Beginning Upper Strings</b>	<b>G</b>	<b>3</b>
Examination of pedagogy and instructional materials designed to teach first and second year violin and viola. Prereq: Enrollment in the Master of Arts String Pedagogy program. Not open to students with credit for 810.33.			
<b>8820</b>	<b>Music Theory Pedagogy</b>	<b>G</b>	<b>3</b>
Teaching of music theory in secondary schools and colleges; evaluation and application of the most effective teaching methods and principles in teaching music theory. Prereq: Grad standing, and enrollment in Music program.			
<b>8823.02</b>	<b>Transformational Theory and Analysis</b>	<b>G</b>	<b>3</b>
Studies in transformational approaches to music; problematic aspects of tonal music; tonally dissolute music of the 19th and 20th centuries. Prereq: 5623 (623). Not open to students with credit for 823.			
<b>8824.01</b>	<b>Computational Musicology I</b>	<b>G</b>	<b>3</b>
The use of computers in music research and instruction; music data structures and programming routines for music research and instruction. Prereq: 5621 (621), 5622 (622), or 5623 (623), or equivalent; or permission of instructor. Not open to students with credit for 824.01.			
<b>8824.02</b>	<b>Computational Musicology II</b>	<b>G</b>	<b>3</b>
The use of computers in music research and instruction; music data structures and programming routines for music research and instruction. Prereq: 5621 (621), 5622 (622), or 5623 (623), or equivalent; or permission of instructor. Not open to students with credit for 824.01.			
<b>8826</b>	<b>Development of Music Theory I</b>	<b>G</b>	<b>3</b>
A study of the principal treatises on music theory from before 1400 to 1700. Prereq: 5621 (621), 5622 (622) or 5623 (623), or equiv, or permission of instructor. Not open to students with credit for 826.			
<b>8827</b>	<b>Development of Music Theory II</b>	<b>G</b>	<b>3</b>
A study of the principal treatises on music theory from 1700 to 1900. Prereq: 5621 (621), 5622 (622), or 5623 (623), or equivalent; or permission of instructor. Not open to students with credit for 827.			
<b>8837</b>	<b>Composition with Electronic Media IV</b>	<b>G</b>	<b>3</b>
Advanced composition using electronically generated sound material. Prereq: 6837 (837). Repeatable to a maximum of 15 cr hrs.			
<b>8838.01</b>	<b>Topics in Music Cognition</b>	<b>G</b>	<b>3</b>
Critical survey of perceptual, cognitive, affective or neuroscience research related to music. Prereq: Permission of instructor. Not open to students with credit for 838.			
<b>8838.02</b>	<b>Topics in Empirical Musicology</b>	<b>G</b>	<b>3</b>
Critical survey of quantitative and systematic research related to music. Prereq: Permission of instructor. Not open to students with credit for 838.			
<b>8838.04</b>	<b>Topics in Recent Literature of Music Cognition</b>	<b>G</b>	<b>3</b>
Critical readings and discussion of current research publications in music cognition. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>8839.01</b>	<b>Music Cognition Research Laboratory</b>	<b>G</b>	<b>3</b>
Practical experiences in laboratory studies of music. Prereq: 8838.01 (838). Repeatable to a maximum of 6 cr hrs.			
<b>8847</b>	<b>Development of Notation: 900-1600</b>	<b>G</b>	<b>3</b>
A survey of notational principles from Gregorian neumes through the mensural system of the Renaissance, with exercises in transcription. Prereq: Grad standing. Not open to students with credit for 847.			
<b>8850</b>	<b>History of Performance Practices</b>	<b>G</b>	<b>3</b>
A study of primary sources pertaining to contemporary attitudes and practices in the performance of music from the Middle Ages to the present. Prereq: Grad standing. Not open to students with credit for 850.			
<b>8852.03</b>	<b>Performance Literature - Strings</b>	<b>G</b>	<b>2</b>
Concentrated study of representative string literature from each style period. Prereq: 7852.03 (752.03), or Doctoral standing. Repeatable to a maximum of 8 cr hrs.			
<b>8852.04</b>	<b>Performance Literature - Woodwinds</b>	<b>G</b>	<b>2</b>
Concentrated study of representative woodwind literature from each style period. Prereq: 7852.04 (752.04), or Doctoral standing. Repeatable to a maximum of 8 cr hrs.			
<b>8852.05</b>	<b>Performance Literature - Brass</b>	<b>G</b>	<b>2</b>
Concentrated study of representative brass literature from each style period. Prereq: 7852.05 (752.05), or Doctoral standing. Repeatable to a maximum of 8 cr hrs.			
<b>8852.07</b>	<b>Performance Literature: Percussion</b>	<b>G</b>	<b>2</b>
Concentrated study of representative percussion literature from each style period. Prereq: 7852.07, 752.07, or Doctoral standing. Not open to students with credit for 852.07. Repeatable to a maximum of 8 cr hrs.			



<b>8860.01</b>	<b>Wind Conducting Repertoire</b>	<b>G</b>	<b>3</b>
Concentrated study of instrumentation and repertoire of bands in Western music from the standpoint of the conductor. Prereq: DMA conducting major, or permission of instructor. Not open to students with credit for 860.01.			
<b>8860.02</b>	<b>Choral Conducting Repertoire</b>	<b>G</b>	<b>3</b>
Concentrated study of choral literature from the Renaissance to the present. Prereq: DMA conducting major, or permission of instructor. Not open to students with credit for 860.02.			
<b>8860.03</b>	<b>Orchestral Conducting Repertoire</b>	<b>G</b>	<b>3</b>
Concentrated study of orchestral repertoire from Monteverdi through the present from the standpoint of the conductor. Prereq: DMA conducting major, or permission of instructor. Not open to students with credit for 860.03.			
<b>8872</b>	<b>Qualitative Research in Music</b>	<b>G</b>	<b>3</b>
This course will examine principles of qualitative research design in social sciences and their application to music teaching and learning. Prereq: Doctoral standing, or permission of instructor.			
<b>8874</b>	<b>Seminar: The Development of Music Education</b>	<b>G</b>	<b>3</b>
Development of music education from the early Greek society to the present day tracing major trends and persons of influence. Prereq: Grad standing. Not open to students with credit for 874.			
<b>8875</b>	<b>Seminar: Psychological Factors in Music Education</b>	<b>G</b>	<b>3</b>
A study of the psychological factors, theory, and research in the musical development of children and adolescents with implications for school music education programs. Prereq: 7761 (761). Not open to students with credit for 875.			
<b>8877</b>	<b>Seminar: Social Factors in Music Education</b>	<b>G</b>	<b>3</b>
A study of the social influences on music education and their relationship to primary and secondary music programs and practices. Prereq: 7760 (760). Not open to students with credit for 877.			
<b>8879</b>	<b>Seminar: Music in Higher Education</b>	<b>G</b>	<b>3</b>
The role of music in higher education historically and in contemporary times, including its philosophical bases, degree programs, and organizations. Prereq: Grad standing. Not open to students with credit for 879.			
<b>8885</b>	<b>Fieldwork in Ethnomusicology</b>	<b>G</b>	<b>3</b>
A study of the theory and practice of ethnomusicological fieldwork. Prereq: Grad standing, and enrollment in Music program. Repeatable to a maximum of 6 cr hrs.			
<b>8886</b>	<b>Theories and Methods of Ethnomusicology</b>	<b>G</b>	<b>2</b>
A study of scholarly approaches and research methods in ethnomusicology. Prereq: Grad standing, and enrollment in Music program. Not open to students with credit for 886.			
<b>8895</b>	<b>Seminar in Music</b>	<b>G</b>	<b>1 - 3</b>
Colloquia, workshops, and special topics seminars in music. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			
<b>8902.11</b>	<b>Applied Music - Major - Piano</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in piano performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.21</b>	<b>Applied Music - Major - Voice</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in voice performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.31</b>	<b>Applied Music - Major - Violin</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in violin performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.32</b>	<b>Applied Music - Major - Viola</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in viola performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.33</b>	<b>Applied Music - Major - Cello</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in cello performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.34</b>	<b>Applied Music - Major - Double Bass</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in double bass performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.41</b>	<b>Applied Music - Major - Flute</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in flute performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.42</b>	<b>Applied Music - Major - Oboe</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in oboe performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			

<b>8902.43</b>	<b>Applied Music - Major - Clarinet</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in clarinet performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.45</b>	<b>Applied Music - Major - Saxophone</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in saxophone performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.46</b>	<b>Applied Music - Major - Bassoon</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in bassoon performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.51</b>	<b>Applied Music - Major - Horn</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in horn performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.52</b>	<b>Applied Music - Major - Trumpet</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in trumpet performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.53</b>	<b>Applied Music - Major - Trombone</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in trombone performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.55</b>	<b>Applied Music - Major - Tuba</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in tuba performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8902.71</b>	<b>Applied Music - Major - Percussion</b>	<b>G</b>	<b>2 - 4</b>
Advanced study of music literature in percussion performance. Prereq: Enrollment in DMA program. Repeatable to a maximum of 40 cr hrs or 10 completions.			
<b>8903.01</b>	<b>Advanced Wind Conducting</b>	<b>G</b>	<b>4</b>
Study of advanced wind conducting technique and application to appropriate repertoire. Prereq: Enrollment in DMA conducting program. Repeatable to a maximum of 24 cr hrs.			
<b>8903.02</b>	<b>Advanced Choral Conducting</b>	<b>G</b>	<b>4</b>
Study of advanced choral conducting technique and application to appropriate repertoire. Prereq: Enrollment in DMA conducting program. Repeatable to a maximum of 24 cr hrs.			
<b>8903.03</b>	<b>Advanced Orchestral Conducting</b>	<b>G</b>	<b>4</b>
Study of advanced orchestral conducting technique and application to appropriate repertoire. Prereq: Enrollment in DMA conducting program. Repeatable to a maximum of 24 cr hrs.			
<b>8905</b>	<b>Doctoral Recital</b>	<b>G</b>	<b>2</b>
Intended for the graduate student who is preparing a doctoral recital. Prereq: 7905. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.			
<b>8950</b>	<b>Seminar in Musicology</b>	<b>G</b>	<b>3</b>
Research topic in musicology to be determined by the area. Prereq: Grad standing. Repeatable to a maximum of 30 cr hrs.			
<b>8998</b>	<b>Doctoral Research Non-Thesis</b>	<b>G</b>	<b>1 - 3</b>
Research for non-thesis purposes. Prereq: Grad standing. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>8999</b>	<b>Research for Dissertation or Document</b>	<b>G</b>	<b>1 - 5</b>
Research for dissertation or document purposes. Prereq: Grad standing. Repeatable to a maximum of 30 cr hrs or 10 completions. This course is graded S/U.			

## Naval Science

<b>1101</b>	<b>Freshmen Leadership Lab</b>	<b>U</b>	<b>1</b>
An introduction to the practical application of basic leadership principles in the United States Navy and United States Marine Corps. Prereq: Not open to students with credit for 111. This course is graded S/U.			
<b>1102</b>	<b>Freshmen Leadership Lab</b>	<b>U</b>	<b>1</b>
A continued practical application of basic leadership principles in the United States Navy and United States Marine Corps. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>1110</b>	<b>Survey of Naval Science</b>	<b>U</b>	<b>3</b>
Introduction to and survey of disciplines peculiar to naval science including naval tasks & missions, regulations, customs, traditions, & organizational relationships. Students must contact Naval Science Department (292-6015) for orientation program. Prereq: Enrollment in NROTC Unit, or permission of instructor. Not open to students with credit for 111.			
<b>1210</b>	<b>Sea Power and Maritime Affairs Seminar</b>	<b>U</b>	<b>3</b>
An analysis of maritime affairs as related to the United States naval forces, from the Revolutionary War to present day. Students must contact Naval Science Department (292-6015) for Naval ROTC program information. Prereq: 1110, or permission of instructor. Not open to students with credit for 121 and 131.			

## 344 Naval Science

<b>2001</b>	<b>Sophomore Leadership Lab I</b>	<b>U</b>	<b>1</b>
An intensified employment of leadership principles and practices relevant to future Navy and Marine Corps officers. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>2002</b>	<b>Sophomore Leadership Lab II</b>	<b>U</b>	<b>1</b>
A continued employment of leadership principles and practices relevant to future Navy and Marine Corps officers. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>2110</b>	<b>Navigation I</b>	<b>U</b>	<b>3</b>
A study of navigation and piloting vessels at sea, including the determination of position by dead reckoning, visual bearings, and electronic methods. Prereq: Not open to students with credit for 211 and 221.			
<b>2210</b>	<b>Navigation II</b>	<b>U</b>	<b>3</b>
A study of fleet operations including operations and tactics including the study of relative motion of ships at sea, maneuvering board, tactics, and naval communications. Prereq: 2110, or permission of instructor. Not open to students with credit for 221 and 431.			
<b>3001</b>	<b>Junior Leadership Lab I</b>	<b>U</b>	<b>1</b>
An advanced application of leadership theory, skills, and practices for perspective Navy and Marine Corps officers. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>3002</b>	<b>Junior Leadership Lab II</b>	<b>U</b>	<b>1</b>
A continuation of the advanced application of leadership theory, skills, and practices for perspective Navy and Marine Corps officers. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>3110</b>	<b>Naval Ship Systems</b>	<b>U</b>	<b>3</b>
Study of fundamental thermodynamics, conventional and nuclear ship propulsion systems. For Naval ROTC program information, contact 292-6015. Prereq: Permission of instructor. Not open to students with credit for 311 and 321.			
<b>3210</b>	<b>Naval Mission Systems</b>	<b>U</b>	<b>3</b>
Applications of naval weapons systems as they relate to the ships of today's Navy. Theoretical presentation of fundamental weapons concepts including electromagnetic principles, feedback controls, and basic ballistics. Prereq: 3110 (311 and 321). Not open to students with credit for 321 and 331.			
<b>3510</b>	<b>Evolution of Warfare</b>	<b>U</b>	<b>3</b>
A study of the evolution of weapons and tactics, illustrating the principles and variables of war used in certain battles from Alexander through the present day. For ROTC program information, contact 292-6015. Prereq: 1210 (121 and 131). Not open to students with credit for 351 and 352.			
<b>3530</b>	<b>Modern Basic Military Strategy and Tactics</b>	<b>U</b>	<b>2</b>
Prepares future Marine Corps Officers by studying modern tactical principles, current military developments, & conducting physical fitness training. This course is only open to those students preparing to attend Marine Corps Officer Candidate School. Prereq: Not open to students with credit for 353.			
<b>4001</b>	<b>Senior Leadership Lab I</b>	<b>U</b>	<b>1</b>
A culmination of the knowledge, skills, theory, and leadership practices acquired in the Navy ROTC program to ensure that prospective Navy and Marine Corps officers are ready to receive a commission in the United States military. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>4002</b>	<b>Senior Leadership Lab II</b>	<b>U</b>	<b>1</b>
A continued culmination of the knowledge, skills, theory, and leadership practices acquired in the Navy ROTC program to ensure that prospective Navy and Marine Corps officers meet all necessary requirements for commissioning as military officers. Prereq: Enrollment in Navy ROTC program. This course is graded S/U.			
<b>4110</b>	<b>Leadership and Management</b>	<b>U</b>	<b>3</b>
A seminar study of effective leadership in a military setting involving examples from Naval history as well as modern business management practices. Prereq: Enrollment in NROTC program, or permission of instructor. Not open to students with credit for 231.			
<b>4210</b>	<b>Leadership and Ethics</b>	<b>U</b>	<b>3</b>
A study of issues relating to naval law, the Uniform Code of Military Justice and the moral principles involved in making informed decisions as a military officer. Prereq: Enrollment in NROTC program, or permission of instructor. Not open to students with credit for 411.			
<b>4510</b>	<b>Amphibious &amp; Expeditionary Warfare</b>	<b>U</b>	<b>3</b>
A study of the concepts and evolution of amphibious warfare from history through present. For Navy ROTC program information, contact 292-6015. Prereq: 1210 (131 and 131), or permission of instructor. Not open to students with credit for 451 and 452.			

<b>4520</b>	<b>Fundamentals of Maneuver Warfare</b>	<b>U</b>	<b>3</b>
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This course prepares future military officers and other leaders for service by studying modern tactical principles, current military developments, and other aspects of warfare and their interactions with and influences on maneuver warfare doctrine. There is a specific focus on the United States Marine Corps as the premier maneuver warfighting organization.

## Near Eastern Languages and Cultures

<b>1125</b>	<b>Stories of the Middle East and South Asia</b>	<b>U</b>	<b>3</b>
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This course will read and analyze a variety of short stories to illuminate different cultures of the Middle East and South Asia. The goal of the course is to introduce students to diverse cultures through literature. Students will become familiar with a variety of literary representations, social structures and religious, ethnic and racial diversity after the completion of this course. GE lit and diversity global studies course.

<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
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Special topics to be announced in the semester previous to the one in which the course is offered.

Prereq: Permission of instructor or department. Repeatable to a maximum of 15 or hrs or 5 completions.

<b>2241</b>	<b>The Middle East Close-Up: People, Cultures, Societies</b>	<b>U</b>	<b>3</b>
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Introduction to the culture of the Middle East as lived in its villages, towns, and cities.

Prereq: Not open to students with credit for 241 or Anthrop 2241 (241). GE cultures and ideas and diversity global studies course. Cross-listed in Anthrop.

<b>2244</b>	<b>Films of the Middle East</b>	<b>U</b>	<b>3</b>
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Overview of contemporary films from different Middle Eastern countries; how filmmakers of the region view, present, and construct their countries using particular modes of representation. Prereq: English 1110. GE VPA and diversity global studies course.

<b>2680</b>	<b>It's The End Of The World!: Apocalypticism in Christianity, Judaism, and Islam</b>	<b>U</b>	<b>3</b>
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This course will explore how the end of the world-generally understood to be preceded by enormous wars and disasters as well as the judgment of people and a reckoning of their deeds-was imagined over two millennia by Christians, Jews, and Muslims. The course will cover primary and secondary historical works, as well as fictional bestsellers, about the apocalypse from around the world.

Prereq or concur: English 1110.xx, or permission of instructor. Not open to students with credit for History 2680. Cross-listed in History. GE historical study and diversity global studies course.

<b>2798.01</b>	<b>Experiencing Everyday Life in South Asia</b>	<b>U</b>	<b>3</b>
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Introduces students to the history, politics, cultures, and identities of India. Students explore religious and historical sites (of New Delhi, Varanasi, Agra, Mathura, and Vrindavan), experience the political and cultural currents within the country, and see firsthand the broad spectrums of influences that various human movements have made on the landscape of India. Prereq: 3620 or CompStd 3620, and admission to program. GE education abroad course.

<b>3111</b>	<b>Ancient Empires</b>	<b>U</b>	<b>3</b>
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This is an introduction to the history and cultures of the ancient empires of southwestern Asia, focusing on the period from the Akkadian empire to the establishment of Islam (ca 2340 BCE - ca 750 CE).

Prereq: English 1110. GE historical study course.

<b>3204</b>	<b>The Middle East in the Media</b>	<b>U</b>	<b>3</b>
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Examination of contemporary Middle Eastern cultures through critical evaluation of the media which inform our understanding of international politics.

Prereq: English 1110 (110). Not open to students with credit for 344. GE cultures and ideas and diversity global studies course.

<b>3700</b>	<b>Mythology of Ancient Egypt and Mesopotamia</b>	<b>U</b>	<b>3</b>
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An introductory comparative survey of the mythology of ancient Egypt and Mesopotamia.

Prereq: English 1110 (110). Not open to students with credit for 370. GE cultures and ideas and diversity global studies course.

<b>4601</b>	<b>Israeli and Palestinian Literature</b>	<b>U</b>	<b>3</b>
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An exploration of Israeli and Palestinian history, identity and conflict using a variety of Arabic and Hebrew texts in translation.

Prereq: English 110.

<b>4998H</b>	<b>Honors Research in Near Eastern Languages and Cultures</b>	<b>U</b>	<b>1 - 3</b>
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Offers undergraduate honors students an advanced opportunity to do independent study and research beyond normal coursework.

Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 10 or hrs or 5 completions. This course is graded S/U.

<b>4999</b>	<b>Undergraduate Thesis</b>	<b>U</b>	<b>1 - 3</b>
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Offers undergraduates with special aptitudes the opportunity to do independent study and research leading to a thesis.

Prereq: Sr standing with an average of B in all NELC classes. Repeatable to a maximum of 10 or hrs or 5 completions. This course is graded S/U.

<b>4999H</b>	<b>Undergraduate Honors Thesis</b>	<b>U</b>	<b>1 - 3</b>
Offers undergraduates with special aptitudes the opportunity to do independent study leading to an honors thesis. Prereq: Honors, Sr standing with an average of B in all work in NELC, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5061</b>	<b>The Global Mediterranean</b>	<b>U G</b>	<b>3</b>
This course examines the governments, societies, and cultures of the littoral states (empires/nations) of the Mediterranean Sea. We will pay attention to the 'East/West' paradigm as a prism through which to examine past and present events. Prereq: Not open to students with credit for Italian 5061 or CompStd 5016. Cross-listed in Italian and CompStd.			
<b>5101</b>	<b>Introduction to the Field of Near Eastern Languages &amp; Cultures</b>	<b>U G</b>	<b>1</b>
Offers a concise introduction to the field of Near Eastern Languages and Cultures and its close cognates, focusing on the history and constitution of institutional bases for the study of the Near East. Prereq: Jr or Sr standing, and Arabic, Hebrew, or Islamic Studies major; or Grad standing.			
<b>5103</b>	<b>Grammar of Selected Ancient Near Eastern Languages</b>	<b>U G</b>	<b>3</b>
Fundamentals of grammar and reading in ancient Near Eastern languages (e.g. Egyptian, Coptic, Sumerian, Babylonian, Northwest Semitic dialects, Syriac). Prereq: Knowledge of a Semitic language, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>5111</b>	<b>Comparative Semitic Linguistics</b>	<b>U G</b>	<b>3</b>
An introduction to the study of comparative Semitic linguistics. Prereq: Permission of instructor. Not open to students with credit for JewshSt 5111.			
<b>5120</b>	<b>Biblical Aramaic</b>	<b>U G</b>	<b>3</b>
Introduction to the language of the Aramaic sections of the books of Daniel and Ezra in the Old Testament. Prereq: Hebrew 1103 (104), or permission of instructor. Not open to students with credit for 620.			
<b>5121</b>	<b>Jewish Aramaic</b>	<b>U G</b>	<b>3</b>
Provides students grammatical and textual skills to read Jewish post-biblical Aramaic and to introduce them to some of the most important texts written in the language. Introduces grammar of Jewish Aramaic, dialectal differences among the Aramaic of the Dead Sea Scrolls, Palestine, and Jewish Babylonia, and how these differences are reflected in the manuscript and inscriptional evidence. Prereq: Hebrew 1103, or permission of instructor.			
<b>5125</b>	<b>Syriac I</b>	<b>U G</b>	<b>3</b>
Introduction to Syriac.			
<b>5126</b>	<b>Syriac II</b>	<b>U G</b>	<b>3</b>
Continuation from NELC 5125 Introduction to Syriac (Syriac I). Prereq: 5125, or permission of instructor.			
<b>5130</b>	<b>Ugaritic</b>	<b>U G</b>	<b>3</b>
Introduction to the language and literature of Ugaritic; readings in the Ugaritic mythological literature. Prereq: Permission of instructor. Not open to students with credit for JewshSt 5130.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 10</b>
Individual studies. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 10</b>
Group studies. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions.			
<b>5204</b>	<b>Culture and Politics in Central Asia</b>	<b>U G</b>	<b>3</b>
Comparative study of cultural legacy and change, including religious and secular life and civil society development, in relation to political trends in Central Asia. Prereq: Jr standing, or permission of instructor. Not open to students with credit for 644.			
<b>5401</b>	<b>Methodologies for the Study of Ancient Religions</b>	<b>U G</b>	<b>3</b>
Introduction to the methodologies and the scholars who have significantly influenced the study of ancient religion. Prereq: Not open to students with credit for Clas 5401. Cross-listed in Clas.			
<b>5645</b>	<b>Contemporary Issues in the Middle East</b>	<b>U G</b>	<b>3</b>
Intensive examination of contemporary issues in the Middle East by applying an interdisciplinary approach. Prereq: 2200 or 245, or Jr standing. Cross-listed in IntStd.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 15</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of department. Repeatable to a maximum of 30 cr hrs or 5 completions.			
<b>6998</b>	<b>NELC MA Exams</b>	<b>G</b>	<b>1 - 3</b>
Preparation for exams for Master of Arts in Near Eastern Languages and Cultures. Prereq: Master's student in NELC. This course is graded S/U.			

## Near Eastern Languages and Cultures 345

<b>6999</b>	<b>NELC MA Thesis</b>	<b>G</b>	<b>1 - 4</b>
Thesis preparation for Master of Arts in Near Eastern Languages and Cultures. Prereq: MA student in NELC. This course is graded S/U.			
<b>7301</b>	<b>Theorizing Literature</b>	<b>G</b>	<b>3</b>
Accelerated introduction to literary theory and criticism, surveying significant developments in modern and contemporary literary and cultural studies. Prereq: Grad standing, or permission of instructor(s). Not open to students with credit for CompStd 7301. Cross-listed in CompStd 7301.			
<b>7501</b>	<b>Narratives of Origin: The Islamic Tradition</b>	<b>G</b>	<b>3</b>
How the contours of the Islamic narrative fare in a source-critical context. Prereq: Grad standing, or permission of instructor(s).			
<b>7880</b>	<b>Interdepartmental Studies in the Humanities</b>	<b>G</b>	<b>2 - 4</b>
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Prereq: Grad standing, or permission of instructor(s). Repeatable to a maximum of 12 cr hrs or 5 completions.			
<b>7998</b>	<b>Candidacy Exams in Near Eastern Languages &amp; Cultures</b>	<b>G</b>	<b>1 - 8</b>
Preparation for Candidacy Exams in Near Eastern Languages and Cultures. Prereq: PhD student preparing for Candidacy exams. This course is graded S/U.			
<b>7999</b>	<b>Research for NELC Dissertation Prospectus</b>	<b>G</b>	<b>1 - 3</b>
Doctoral dissertation prospectus research in Near Eastern Languages and Cultures. Prereq: PhD candidate. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>8189</b>	<b>Field Research in Near Eastern Languages &amp; Cultures</b>	<b>G</b>	<b>1 - 3</b>
Field research for doctoral dissertation in Near Eastern Languages & Cultures. Prereq: PhD candidate. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>8998</b>	<b>Doctoral Research in Near Eastern Languages and Cultures</b>	<b>G</b>	<b>1 - 3</b>
Doctoral dissertation research in Near Eastern Languages and Cultures. Prereq: PhD candidate. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>8999</b>	<b>Dissertation Writing in Near Eastern Languages and Cultures</b>	<b>G</b>	<b>1 - 3</b>
Doctoral dissertation writing in Near Eastern Languages and Cultures. Prereq: PhD candidates. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			

## Neurological Surgery

<b>6193</b>	<b>Independent Studies in Neurological Surgery</b>	<b>G</b>	<b>1 - 40</b>
Independent research in neurological surgery. Repeatable to a maximum of 40 cr hrs or 40 completions. This course is graded S/U.			
<b>8250</b>	<b>Biology of the Tumor Microenvironment</b>	<b>G</b>	<b>2</b>
Cellular and molecular biology of the microenvironment in solid cancers. Signals and mechanisms that promote tumor initiation and progression. Prereq: 2nd year Grad standing, with lab work complete.			
<b>8999</b>	<b>Research in Neurological Surgery</b>	<b>G</b>	<b>1 - 18</b>
Research for Thesis only. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			

## Neurology

<b>8999</b>	<b>Research</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis or dissertation. Repeatable. This course is graded S/U.			

## Neuroscience Department

<b>1100</b>	<b>Neuroscience Survey Course</b>	<b>U</b>	<b>1</b>
This course will introduce students to the Neuroscience curriculum, explore degree requirements, develop a personalized academic/vocational plan, aid in professional development, familiarize students with academic resources and support services, and establish a relationship with an academic advisor.			
<b>1100H</b>	<b>Neuroscience Honors Survey Course</b>	<b>U</b>	<b>1</b>
Introduces students to the Neuroscience curriculum, explore degree requirements, develop a personalized academic/vocational plan, aid in professional development, familiarize students with academic resources and support services and establish a relationship with an academic advisor. Prereq: Honors standing.			

## 346 Neuroscience Department

<b>3000</b>	<b>Cellular and Molecular Neuroscience</b>	<b>U</b>	<b>3</b>
Course covering cellular and molecular organization of the nervous system. Prereq: Biology 1113 (113) or 1113H (115H), or permission of instructor. Not open to students with credit for NeuroSc 300.			
<b>3010</b>	<b>Introduction to Neurophysiology</b>	<b>U</b>	<b>3</b>
The course will discuss basic principles of neurophysiology working from the level of the ion channel to the whole system. Prereq: 3000 or 3050, or permission of instructor. Admis Cond course.			
<b>3025</b>	<b>History of Neuroscience</b>	<b>U</b>	<b>3</b>
Designed for neuroscience majors or non-majors. We will look at the discovery that demonstrated that different areas of the brain serve different functions, the mind-body argument, the birth of experimentation in the brain, and the discovery of neurons, neurotransmitters and neural communication. We will look into the lives of some of the major neuroscientists and their discoveries.			
<b>3050</b>	<b>Structure and Function of the Nervous System</b>	<b>U</b>	<b>3</b>
Basic principles of the anatomical and neurophysiological organization of the nervous system. Prereq: 3000. Admis Cond course.			
<b>3191</b>	<b>Internship in Neuroscience</b>	<b>U</b>	<b>1 - 15</b>
Neuroscience students have the opportunity to combine classroom theory with practical application through job-related experiences during a neuroscience related internship (Department Approval of Internship Site is Required). Maximum of 3 credit hours of any combination of Neurosc 3191 and Neurosc 3193 can be applied to the Breadth Requirements of the major. Prereq: GPA 2.0 or above, and enrollment in Neuroscience, and permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>3193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 15</b>
This course enables students to pursue research in the field of Neuroscience under the guidance of a Neuroscience faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 99 cr hrs or 10 completions. This course is graded S/U.			
<b>4050H</b>	<b>Neurogenetics</b>	<b>U</b>	<b>3</b>
This course takes a historical approach to gene discovery in neuroscience: spanning classic mutagenesis studies in simple invertebrate systems to the mapping and identification of neurological disease genes in humans, with stops along the way to explore unique genetic systems and studies, such as the Stanford dog narcolepsy project. Prereq: 3000, or permission of instructor.			
<b>4100</b>	<b>Basic and Clinical Foundations of Neurological Disease</b>	<b>U</b>	<b>3</b>
Discusses basic and clinical issues related to a variety of neurological disease. Prereq: 3000, or permission of instructor. Admis Cond course.			
<b>4550</b>	<b>Autism Spectrum Disorder and Related Neurodevelopmental Disorders</b>	<b>U</b>	<b>3</b>
Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder characterized by repetitive and characteristic patterns of behavior and difficulties with social communication and interaction that has its onset during early childhood. This course will explore different aspects of ASD by examining studies on genetics, neurology, neurobiology early intervention, and behavioral science. Prereq: 3000.			
<b>4623</b>	<b>Biological Clocks and Behavior</b>	<b>U</b>	<b>3</b>
The broad variety of biological rhythms of animals and humans, including ultradian, daily, lunar, tidal, and annual cycles. Properties of biological clocks and ways in which rhythms are generated and how they are synchronized to the external environment. Prereq: 3000. Not open to students with credit for Psych 4623 (623). Cross-listed in Psych.			
<b>4640</b>	<b>Neuronal Signal Transduction</b>	<b>U</b>	<b>3</b>
Focuses on the fundamental intracellular signaling events and transcriptional control mechanisms that shape CNS physiology and pathophysiology. The course will describe the basic molecular mechanisms that regulate transcriptional and translational control mechanisms in the nervous system. Cellular signaling pathways will be placed within a relevant context. Prereq: 3000.			
<b>4850</b>	<b>Contemporary Topics in Neuroscience</b>	<b>U</b>	<b>3</b>
A merging of pop culture and Neuroscience, this course will survey recent events and literature in the field of Neuroscience from learning and memory, neurodevelopmental disorders, the microbiome, and aging. Discover why the Wall Street Journal calls this the "Golden Age of Neuroscience." Prereq: 3000 and Psych 3313.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 15</b>
Students will be given credit for participating in a research project in the laboratory of a faculty member in the Department of Neuroscience. Prereq: Permission of instructor. Repeatable to a maximum of 10 completions. This course is progress graded (S/U). Admis Cond course.			
<b>4999</b>	<b>Neuroscience Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 15</b>
A program of individual research with a Neuroscience faculty member culminating in a thesis and oral examination. Prereq: Permission of advisor. Repeatable to a maximum of 15 cr hrs or 8 completions. This course is graded S/U.			

<b>4999H</b>	<b>Neuroscience Undergraduate Honors Thesis Research</b>	<b>U</b>	<b>1 - 15</b>
A program of individual research with a Neuroscience faculty member culminating in an honors thesis and oral examination. Prereq: Honors standing, and permission of advisor. Repeatable to a maximum of 15 cr hrs or 8 completions. This course is graded S/U.			
<b>5644</b>	<b>Behavioral Endocrinology</b>	<b>U G</b>	<b>3</b>
Exploration of the interactions among hormones, brain, and behavior through an integrative approach. Prereq: Psych 313, or Grad standing, or permission of instructor. Not open to students with credit for 644 or Psych 4644 (644). CT Admis Cond course.			
<b>5790H</b>	<b>Developmental Neuroscience</b>	<b>U G</b>	<b>3</b>
Investigates the molecular, cellular and genetic mechanisms responsible for building nervous systems. The brain is a complex structure, yet it develops from a single sheet of cells. We will discuss how this development tolerates tremendous genetic and environmental variability to assemble a functioning nervous system. Prereq: Honors standing, 3000 and 3050, and Jr or Sr standing. Not open to students with credit for 7900.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 15</b>
Enables students to pursue research in the field of Neuroscience under the guidance of a faculty member in the Department of Neuroscience. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U. Admis Cond course.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 16</b>
Group studies course in which various techniques used in Neuroscience research or specific topics in neuroscience will be taught. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions. This course is graded S/U. Admis Cond course.			
<b>7000.01</b>	<b>Neuroscience Research Techniques</b>	<b>G</b>	<b>1 - 30</b>
This will provide the necessary skills for students who have a goal to work research laboratory either in academia or industry. They will be assigned to laboratories where they will become competent in various lab skills including but not limited to animal handling, PCR, immunohistochemistry, genetic screening, CRISPR, maintenance of lab notebooks, basic data analysis. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 4 completions.			
<b>7000.02</b>	<b>Neuroscience Education Techniques</b>	<b>G</b>	<b>1 - 6</b>
To prepare students for a career in teaching neuroscience in an education setting (e.g., high school science, neuroscience courses at community or small liberal arts colleges). Students students will become competent in developing courses, giving lectures, grading exams, counseling students, etc. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 4 completions.			
<b>7001</b>	<b>Foundations of Neuroscience I</b>	<b>G</b>	<b>6</b>
Discusses basic principles of the cellular, molecular and neurophysiological, and neuropharmacological organization of the nervous system. Prereq: Permission of instructor. Not open to students with credit for 723, 724, and Pharm 824. CT Admis Cond course.			
<b>7002</b>	<b>Foundations of Neuroscience II</b>	<b>G</b>	<b>6</b>
Discusses the organization of select systems in the nervous system including motor, sensory, autonomic, and higher cognitive centers. Course will cover anatomical, functional and behavioral concepts. Prereq: Permission of instructor. Not open to students with credit for 725, Psych 726, and Pharmacol 824. CT Admis Cond course. Cross-listed in Dent 7012.03.			
<b>7050</b>	<b>Neurobiology of Disease</b>	<b>G</b>	<b>3</b>
Neurobiology of Disease will explore the basis of major diseases affecting the nervous system. Prereq: Permission of instructor. Not open to students with credit for 705. Cross-listed in BioPhrm.			
<b>7100</b>	<b>Current Topics in Neuroscience</b>	<b>G</b>	<b>1</b>
In this course students will be assigned journal articles in the field of Neuroscience. They will be expected to discuss the papers in class under faculty guidance. Repeatable to a maximum of 15 cr hrs. This course is progress graded (S/U).			
<b>7200.01</b>	<b>Neuroscience Laboratory</b>	<b>G</b>	<b>1</b>
Laboratory component of NeuroSc 7002 in which students will learn anatomy of the human brain. Prereq: Permission of instructor. Admis Cond course. Cross-listed in Dent 7012.01.			
<b>7500</b>	<b>Neuroimmunology</b>	<b>G</b>	<b>2</b>
Discusses research and clinical applications of inflammatory processes within the central nervous system with special emphasis on neurodegenerative disorders, autoimmune disease, and neurotrauma (e.g., spinal injury). Prereq: Permission of instructor. Admis Cond course.			
<b>7600</b>	<b>Neuroscience Capstone Project</b>	<b>G</b>	<b>2 - 4</b>
The capstone course is designed to evaluate the student's ability to problem solve, carry out a critical analysis of scientific procedures and/or educational material, and their ability to communicate this information to their peers and instructors in the degree program. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 2 completions.			



## 348 Nuclear Engineering

<b>6881</b>	<b>Nuclear Engineering Seminar</b>	<b>G</b>	<b>1</b>
Discussions by graduate students and invited eminent speakers of their research projects and topics of interest in nuclear engineering. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 10 or hrs or 20 completions.			
<b>7865</b>	<b>Neutron Slowing Down and Thermalization</b>	<b>G</b>	<b>3</b>
Neutron slowing down in infinite and finite media, thermal spectrum calculations, and cell calculations in heterogeneous core lattices. Prereq: 6708, 704, 705, or 708; or permission of instructor. Not open to students with credit for 865.			
<b>8193</b>	<b>Individual Studies in Nuclear Engineering</b>	<b>G</b>	<b>1 - 4</b>
Designed to give the advanced student opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 4 or hrs or 4 completions.			
<b>8194</b>	<b>Group Studies in Nuclear Engineering</b>	<b>G</b>	<b>1 - 4</b>
Special group studies of a selected area of nuclear engineering not provided in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.			
<b>8998</b>	<b>Graduate Research in Nuclear Engineering</b>	<b>G</b>	<b>1 - 12</b>
Nuclear Engineering research for thesis. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Nuclear Engineering Research for Dissertation</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## Nursing

<b>1100</b>	<b>Nursing Survey</b>	<b>U</b>	<b>1</b>
Introduction to the university community, the College of Nursing, and the profession of nursing with emphasis on strategies for success, resources, and procedures. Designed for students admitted as freshman. 1100H (honors) may be available. Prereq: Enrollment in pre-Nursing. Not open to students with credit for 100. This course is progress graded (S/U).			
<b>1103</b>	<b>Nursing Assistant Education</b>	<b>U</b>	<b>3</b>
Knowledge and skills necessary to provide patient care as a nursing assistant in various healthcare settings. Prereq: Permission of Nursing 1103 course head.			
<b>2100</b>	<b>Introduction to Professional Nursing: Concepts and Practice</b>	<b>U</b>	<b>3</b>
Introduction to professional Nursing and the health care delivery system, its history and evolution, and the examination of the legal and ethical basis for professional practice. Prereq: Admission to the Nursing major. Not open to students with credit for 301.01 or 301.02 or 301.03.			
<b>2102</b>	<b>Optimizing Personal Health, Happiness &amp; Well-being</b>	<b>U</b>	<b>3</b>
Application of evidence-based concepts and strategies to manage stress through cognitive-behavioral skills building. Strengthen resiliency, set goals, problem solve and engage in healthy lifestyle behaviors to improve personal health, happiness and well-being.			
<b>2270</b>	<b>Nursing Care of Adults and Older Adults I</b>	<b>U</b>	<b>5</b>
Nursing knowledge essential to caring for adults and older adults with emphasis on health promotion, risk assessment, disease prevention, and health problems. Prereq: 2100, 2410, and 2450. Not open to students with credit for 402 and 403.			
<b>2367</b>	<b>Writing About Healthcare Issues in the United States</b>	<b>U</b>	<b>3</b>
Designed to enhance student's critical and analytical reading and writing skills through a study of current health issues in the United States. Prereq: English 1110 (110) or equiv. Not open to students with credit for 367. GE writing and comm course: level 2.			
<b>2410</b>	<b>Health Assessment</b>	<b>U</b>	<b>3</b>
Introduction to the foundational health assessment concepts of Nursing and the assessment skills required in the provision of Nursing care across the lifespan. Prereq: Admission to the Nursing major. Not open to students with credit for 301.01 or 301.02 or 301.03.			
<b>2420</b>	<b>A Nursing Perspective: Life Span Development of Individuals within a Family Context</b>	<b>U</b>	<b>3</b>
Study of growth and development of individuals within a family context from conception to death with an emphasis on assessment and interventions utilized in Nursing practice. Prereq: Admission to the Nursing major. Not open to students with credit for 337.			
<b>2450</b>	<b>Pathophysiology for Nursing Practice</b>	<b>U</b>	<b>3</b>
Study of pathophysiology and disease processes across the lifespan as a scientific foundation for nursing practice. Prereq: Admission to Nursing major. Not open to students with credit for 385.01 or 385.02 or 385.03.			

<b>2460</b>	<b>Introduction to Therapeutic Communication for Health Professionals</b>	<b>U</b>	<b>3</b>
Introduction to the process of effective communication and collaboration in health care settings. Prereq: Admission to the Nursing major. Not open to students with credit for 301.01 or 301.02 or 301.03.			
<b>2470</b>	<b>Introductory Pharmacology for Nurses</b>	<b>U</b>	<b>3</b>
Introduction to pharmacokinetic principles, drug mechanism of action and nursing implications for common classes of medications. Prospective Graduate Entry Nursing students may enroll in Spring semester by contacting nursing@osu.edu. Prereq: 2100, 2410, 2450, and 2460. Not open to students with credit for 604.			
<b>2780</b>	<b>Scholarship for Evidence Based Practice</b>	<b>U</b>	<b>3</b>
Introduction to and application of foundational concepts, skills and competencies of evidence-based practice (EBP), to support implementation to improve practice and outcomes. Includes overview of research methodologies, concepts and ethics to build critical appraisal skills. Prereq: Enrollment in the Nursing major.			
<b>2781H</b>	<b>Honors Research Methods</b>	<b>U</b>	<b>4</b>
Introduction to information literacy, nursing research methods, evidence based practice, the linkages between these areas and how they influence professional nursing practice through direct involvement in the research process. Prereq: Honors standing. Soph standing in the major. Not open to students with credit for 541H.			
<b>2798S</b>	<b>Nursing Short Term Study Abroad Program</b>	<b>U</b>	<b>½ - 4</b>
Preparing students for travel and learning experiences abroad. Participant in the College of Nursing short term study abroad program required. Domestic field experiences may be allowable. Prereq: Enrollment in Nursing major, and permission of instructor. Repeatable to a maximum of 4 completions. This course is graded S/U.			
<b>2890.01H</b>	<b>Sophomore Honors Seminar I</b>	<b>U</b>	<b>1</b>
Discussion of topics relevant to academic, professional, and personal development in nursing. Prereq: Honors standing, and Soph standing in Nursing. Not open to students with credit for 320.01H, 320.02H, or 320.03H.			
<b>2890.02H</b>	<b>Sophomore Honors Seminar II</b>	<b>U</b>	<b>1</b>
Discussion of topics relevant to academic, professional, and personal development in nursing. Prereq: Honors standing, and 2890.01H; or permission of instructor. Not open to students with credit for 320.01, 320.02, or 320.03.			
<b>3115</b>	<b>School Health Roles and Responsibilities</b>	<b>U</b>	<b>3</b>
Introduction to the scope of roles and responsibilities involved in school health services locally and globally within school and community settings. Consideration of regulatory directives, health goals and resources. Analysis of skills and factors used to promote healthy school environments. Prereq: Admission to certificate program, or permission of instructor.			
<b>3116</b>	<b>Management of School Health Services</b>	<b>U</b>	<b>3</b>
Overview of the strategies for promoting school health on a daily, weekly, and annual basis focusing on health promotion and disease prevention. Prereq: Admission to certificate program, or permission of instructor.			
<b>3117</b>	<b>Children with Special Needs in Schools</b>	<b>U</b>	<b>3</b>
School health services for children with special needs in schools based on best evidence. Interdisciplinary, legislative, and professional aspects considered. Prereq: Admission to certificate program, or permission of instructor.			
<b>3118</b>	<b>Practicum in School Nursing</b>	<b>U</b>	<b>3</b>
Supervised school nurse field experience in school setting applying the roles and responsibilities of a school nurse according to state and national standards. Prereq or concur: 3115, 3116, 3117, and admission to certificate program; or permission of instructor.			
<b>3200</b>	<b>Failure to Rescue: Recognition and Management of Clinical Triggers</b>	<b>U</b>	<b>2</b>
Designed to introduce students to ECG interpretation and the clinical and decision-making skills necessary to recognize and respond to changes in patients' conditions. Prereq: Jr standing in Nursing, or professional nurse, or permission of instructor. Not open to students with credit for 525.			
<b>3270</b>	<b>Nursing Care of Adults and Older Adults II</b>	<b>U</b>	<b>7</b>
Nursing knowledge essential to caring for adults and older adults with emphasis on management of acutely ill patients with complex health problems. Prereq: 2270. Not open to students with credit for 501.			
<b>3430</b>	<b>Cultural Competence in Health Care: US and Global Contexts</b>	<b>U</b>	<b>3</b>
Introduction to concepts and techniques for the provision of culturally competent care within the U.S. and across global contexts. Prereq: Enrollment in the Nursing major. Not open to students with credit for 440.			
<b>3431</b>	<b>Global Options Nursing Capstone</b>	<b>U</b>	<b>3</b>
Capstone Global Health project for students in the undergraduate Global Options Nursing program. Students enrolling in this course will need instructor permission to ensure that all other Global Option requirements are completed before enrolling. Prereq: Enrollment in undergraduate Global Options Nursing program.			

<b>3890.01H Junior Honors Seminar I</b>	<b>U</b>	<b>1</b>
Discussion of topics relevant to research and the senior thesis proposal. Prereq: Honors standing, and 2890.02H; or permission of instructor. Not open to students with credit for 420.01H, 420.02H, or 420.03H.		
<b>3890.02H Junior Honors Seminar II</b>	<b>U</b>	<b>1</b>
Discussion of topics relevant to research and the senior thesis proposal. Prereq: Honors standing, and 3890.01H; or permission of instructor. Not open to students with credit for 420.01H, 420.02H, or 420.03H.		
<b>4110 Nursing Process in the Perioperative Setting</b>	<b>U</b>	<b>2</b>
Study of the nursing process with clients in the preoperative, intraoperative and postoperative phase; emphasis on patient care coordinator, nursing roles, and evidence-based practice. Prereq: Jr or Sr standing in the College of Nursing, or permission of instructor. This course is graded S/U.		
<b>4193 Individual Studies in Nursing</b>	<b>U</b>	<b>1 - 4</b>
Students will gain skills and knowledge within a focused area of study within the area of expertise of a nursing faculty mentor. The course will expose students to novel scholarly activities and provide individualized learning opportunities. Prereq: Enrollment in Nursing major, and permission of instructor. Repeatable to a maximum of 20 or hrs or 5 completions. This course is graded S/U.		
<b>4240S Concepts in Community Health Nursing</b>	<b>U</b>	<b>4</b>
Study of community health nursing theory and principles applied to the nursing care of individuals, families, groups, communities, and populations. Prereq: 2270, 3270, and 4260.		
<b>4260 Nursing Care of Children and Their Families</b>	<b>U</b>	<b>4</b>
Nursing knowledge essential to caring for children and families with emphasis on health promotion, risk assessment, disease prevention, and common acute and chronic health problems. Prereq: 2270. Not open to students with credit for 405.		
<b>4270 Transition to Professional Nursing</b>	<b>U</b>	<b>6</b>
Exploration of personal and professional topics designed to assist in promoting successful transition from nursing education to a rapidly changing work environment. Prereq: 3270. Not open to students with credit for 503.		
<b>4280 Nursing Care of Women and their Families during Reproductive Transitions</b>	<b>U</b>	<b>4</b>
Nursing knowledge and clinical practice essential to caring for women and their families during reproductive transitions. Prereq: 2270. Not open to students with credit for 404.		
<b>4340 Psychiatric and Mental Health Nursing</b>	<b>U</b>	<b>4</b>
Nursing knowledge applied to the promotion of mental health and to the recovery of individuals with psychiatric diagnoses and their families. Prereq: 2270. Not open to students with credit for 512.		
<b>4400 Leadership and Management of Nursing Practice</b>	<b>U</b>	<b>3</b>
Exploration of leadership and management principles, including an examination of Nursing informatics, as applied to Nursing practice and the health care environment. Prereq: 3270. Not open to students with credit for 503.		
<b>4890.01H Senior Honors Seminar I</b>	<b>U</b>	<b>1</b>
Discussion of topics relevant to research and the senior thesis proposal and professional development in nursing. Prereq: Honors standing, and 3890.02H; or permission of instructor. Not open to students with credit for 520.01H, 520.02H, or 520.03H.		
<b>4890.02H Senior Honors Seminar II</b>	<b>U</b>	<b>1</b>
Discussion of topics relevant to research and the senior thesis proposal and professional development in nursing. Prereq: Honors standing, and 4890.01H; or permission of instructor. Not open to students with credit for 520.01H, 520.02H, or 520.03H.		
<b>4999 Undergraduate Thesis Research</b>	<b>U</b>	<b>½ - 5</b>
Supervised undergraduate nursing thesis research. Prereq: Jr or Sr standing, or permission of instructor. This course is graded S/U.		
<b>5000 Interdisciplinary Case Management for Working with Underserved Populations</b>	<b>U G</b>	<b>2</b>
Provides students the opportunity to collaborate with students from other health care professions including pharmacy, health and rehabilitation sciences, nursing, medicine and social work. The students will use a problem-based learning approach to patient care in community health, focusing on populations, living in poverty, with complex healthcare needs. Prereq: Sr or Grad standing. This course is graded S/U. Cross-listed in HthRhSc, MedColl, Phr, and SocWork.		
<b>5110 Interpersonal Relationships: Personal and Professional Boundaries</b>	<b>U G</b>	<b>1</b>
In depth study of interpersonal relationship boundary issues in personal and professional relationships. Prereq: Not open to students with credit for 450. This course is progress graded (S/U).		

<b>5111 Palliative and End of Life Care</b>	<b>U G</b>	<b>2</b>
Foundation for palliative and hospice care through exploration of individual, family and loved ones' needs at the end of life. Prereq: Sr or Grad standing in Nursing, or permission of instructor. Not open to students with credit for 607.		
<b>5115 MINDSTRONG: An Evidence-based Program to Reduce Stress and Promote Overall Well-being</b>	<b>U G</b>	<b>1</b>
Through a series of educational and skills building activities, this course provides an evidence-based program that reduces stress, improves mental resiliency and builds protective factors that improve overall health, well-being, and academic performance. This course is graded S/U.		
<b>5193 Individual Clinical Studies in Nursing</b>	<b>U G</b>	<b>½ - 5</b>
Students will gain knowledge within the area of expertise of a nursing faculty mentor. The course will provide individualized learning opportunities. Prereq: Enrollment in Nursing major, or permission of instructor. Repeatable to a maximum of 20 or hrs or 4 completions. This course is graded S/U.		
<b>5194 Group Studies in Nursing</b>	<b>U G</b>	<b>1 - 4</b>
Group studies of special problems in Nursing. Prereq: Sr or grad standing in Nursing. Repeatable to a maximum of 10 or hrs or 3 completions.		
<b>5300 Nursing Care of the High-Risk Neonate</b>	<b>U G</b>	<b>2</b>
Introduction to the role of the neonatal nurse in the provision of comprehensive nursing care of the high-risk neonate. Prereq: 2450 (385.03) or 7450 (704), or permission of instructor. Not open to students with credit for 657.		
<b>5410 Health Assessment Review</b>	<b>U G</b>	<b>2</b>
Review of basic health assessment skills with emphasis on health history taking, physical examination techniques and recording concise summaries. Prereq: Permission of instructor. Not open to students with credit for 605.		
<b>5430 Interdisciplinary Healthcare in the Global Community</b>	<b>U G</b>	<b>2</b>
Development of strategies for culturally competent interdisciplinary healthcare in selected world communities. Prereq: 3430 (440) or 6430 (640), or permission of instructor. Not open to students with credit for 609.		
<b>5431 Global Health Care in Your Own Back Yard</b>	<b>U G</b>	<b>3</b>
Designed for graduate students to develop strategies for culturally competent interdisciplinary health care in selected ethnic communities that have immigrated to the United States. Prereq: 3430 or 6430, or permission of instructor.		
<b>5797 Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 18</b>
An opportunity for students to study at a foreign institution and receive OSU credit for work completed there. Students will pay OSU fees and any fees in excess of OSU tuition, as well as all travel and subsistence costs. Prereq: Permission of department chairperson. Repeatable.		
<b>5798S Study Tour</b>	<b>U G</b>	<b>½ - 4</b>
Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details. Must attend required Office of International Affairs (OIA) and College of Nursing pre-departure orientation sessions, and enroll in the U.S. Department of State Smart Traveler Program as required by OIA. Domestic field experiences may be allowable. Prereq: Enrollment in Nursing, and permission of instructor. Repeatable to a maximum of 8 or hrs or 2 completions. This course is graded S/U.		
<b>6100 Introduction to Professional Nursing Practice</b>	<b>G</b>	<b>2</b>
Exploration of personal and professional topics designed to assist in promoting successful transition to the nursing profession in a rapidly changing health care environment. Prereq: Enrollment in the Grad entry option of the M.S. in Nursing program.		
<b>6110 Health Literacy</b>	<b>G</b>	<b>2</b>
Examination and analysis of issues of low health literacy, including populations at risk, research, measurement tools, writing in plain language; health communication techniques; and organizational approaches. Prereq: Grad standing in Health Sciences Professions, Literacy Studies Specialization, Geriatrics Specialization, College and University Teaching Specialization, or permission of faculty coordinator. Not open to students with credit for 710.		
<b>6114 Strategies for Personal Health</b>	<b>G</b>	<b>1</b>
An overview of four dimensions of personal energy (physical, emotional, mental and spiritual) in relation to personal health. Emphasizes development and evaluation of an evidence-based, individually-tailored, and preferred personal health plan. Prereq: Grad standing. This course is graded S/U.		
<b>6240S Concepts in Community Health Nursing</b>	<b>G</b>	<b>4</b>
Study of community health nursing theory and principles applied to the nursing care of individuals, families, groups, communities, and populations. Prereq: 6260, 6270, and 7450.		

## 350 Nursing

**6260 Nursing Care of Children and Their Families** G 4

Nursing knowledge essential to caring for children and families with emphasis on health promotion, risk assessment, disease prevention, and common acute and chronic health problems.

Prereq: 6270, 6420, and 7450.

**6270 Nursing Care of Adults and Older Adults I** G 7

Nursing knowledge essential to caring for adults and older adults, with emphasis on health promotion, risk assessment, disease prevention, and health problems.

Prereq: 6410 and 6100. Concur: 7450. Not open to students with credit for 622.

**6271 Nursing Care of Adults and Older Adults II** G 8

Nursing knowledge essential to caring for adults and older adults with emphasis on management of acutely ill patients with complex health problems.

Prereq: 6270, 6260, 6280, 6240S, 6340, and 7450. Concur: 6480. Not open to students with credit for 631.

**6280 Nursing Care of Women and their Families during Reproductive Transitions** G 4

Nursing knowledge and clinical practice essential to caring for women and their families during reproductive transitions.

Prereq: 6270, 6420, and 7450. Not open to students with credit for 623.

**6330 Advanced Pediatric Physical Assessment for the School Nurse** G 2

Application of principles from growth and development, anatomy, physiology, pathophysiology, clinical decision-making and relevant health assessment data to school nurses in the care of the school age child.

Prereq: Enrolled in the College of Nursing, the College of Education School Nurse Program, or permission of instructor. Not open to students with credit for 723.

**6340 Psychiatric and Mental Health Nursing** G 4

Nursing knowledge applied to the promotion of mental health and to the recovery of individuals with psychiatric diagnoses.

Prereq: 6270 and 7450.

**6343 Health Coaching I** G 1

Underpinnings and application of knowledge and skills in motivational interviewing and patient engagement for health coaching in interprofessional teams.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U.

**6344 Health Coaching II** G 1

Underpinnings and implementation of patient-directed care management and shared decision-making for health coaching in interprofessional teams.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U.

**6403 Interprofessional Leadership** G 1

Students will engage in discussion and activities to develop interprofessional leadership competencies including interprofessional collaboration and effective communication to lead and serve on health care teams.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U.

**6410 Introduction to Health Assessment** G 3

Introduction to the foundational health assessment concepts of Nursing and the assessment skills required in the provision of Nursing care.

Prereq: Enrollment in the graduate entry program. Not open to students with credit for 611.

**6420 A Nursing Perspective: Life Span Development of Individuals within a Family Context** G 3

Study of growth and development of individuals within a family context from conception to death with an emphasis on assessment and interventions utilized in Nursing practice.

Prereq: Enrollment in the graduate entry program. Not open to students with credit for 637.

**6430 Cultural Competence in Health Care: US and Global Contexts** G 3

Introduction to concepts and techniques for the provision of culturally competent care within the U.S. and across global contexts.

Prereq: Enrollment in the Grad entry option of the M.S. in Nursing program, Obesity Sciences Graduate Interdisciplinary Specialization, or permission of instructor.

**6460 Chronic Care Counseling in Spanish for the Latino Patient** G 3

Introduction to the linguistic forms and pragmatic features of Spanish discourse about health and wellness. Theoretical and humanistic underpinnings of patient-centered communication in relation to improving health and wellness outcomes. Emphasis on clinical conversation techniques, practice with standardized patients, and facets of Latino culture relevant to diabetes and chronic care.

Prereq: 7410, Grad standing in Nursing, Registered Nurse Licensure, and moderate level Spanish proficiency by testing and interview with instructors; or permission of instructor for students enrolled in the RN-to-BSN program. This course is graded S/U.

**6480 Quality and Safety Initiatives in Clinical Practice** G 1

A seminar course designed to promote awareness and develop problem-solving leadership skills in creating and sustaining healthy work environments.

Concur: 6271. Not open to students with credit for 633.01.

**6481.01 Health Systems Informatics and Quality I** G 1

Provision of safe, timely, effective, efficient, equitable, and patient-centered care as a member of an interprofessional healthcare team.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U.

**6481.02 Health Systems Informatics and Quality II** G 1

Provision of safe, timely, effective, efficient, equitable, and patient-centered care as a member of an interprofessional healthcare team.

Prereq: 6481.01, or permission of instructor. This course is graded S/U.

**7110 School Nurse Wellness Coordinator Practice** G 3

School nurse wellness coordinator field experience in a school setting applying the roles and responsibilities of a school nurse wellness coordinator.

Prereq: Enrollment in Category 3 School Nurse Wellness Coordinator Certificate program, or permission of instructor.

**7193 Individual Studies in Nursing** G 1 - 4

Students will gain skills and knowledge within a focused area of study within the area of expertise of a nursing faculty mentor. The course will expose students to novel scholarly activities and provide individualized learning opportunities.

Prereq: Grad standing in Nursing, or permission of instructor. Repeatable to a maximum of 20 or hrs or 5 completions. This course is graded S/U.

**7208.01 Adult Acute Care Nurse Practitioner Practicum I** G 3 - 7

Designed to build on major components critical to the knowledge of diagnosis and management of pathologies in acutely ill adults. Focus is centered on the acute care nurse practitioner as an initial care provider for patients with acute illnesses.

Prereq: 7410, 7450, and 7470.

**7208.02 Adult Acute Care Nurse Practitioner Practicum II** G 3 - 10

Application of principles of advanced practice Nursing applied to Adult Critical Care as a population focus. Experiences concentrate on clinical decision-making in an interdisciplinary environment.

Prereq: 7208.01.

**7208.03 Adult Acute Care Nurse Practitioner Practicum III** G 10

Application of principles of advanced practice nursing applied to Adult Critical Care as a population focus. Experiences concentrate on clinical decision-making in an interdisciplinary environment.

Prereq: 7208.02.

**7218.01 Advanced Nursing Practice in Pediatric Acute Care I** G 1 - 11

Application of knowledge, research findings, advanced skills and interventions, including pharmacotherapy, in the management of children with acute and critical conditions affecting circulatory and respiratory function.

Prereq: 7338.01.

**7218.02 Advanced Nursing Practice in Pediatric Acute Care II** G 1 - 11

Application of knowledge, research findings, skills and interventions in the advanced nursing care of acutely and critically ill children.

Prereq: 7218.01.

**7228.01 Advanced Practice Adult Gerontology Primary Care Nurse Practitioner Clinical Practicum I** G 2 - 6

Application of advanced practice nursing theories, research findings, skills and interventions, including pharmacological management to the care of adults, focusing on health promotion needs and the most commonly seen diagnoses in primary care.

Prereq: 7410, 7450, and 7470.

**7228.02 Advanced Practice Adult Gerontology Primary Care Nurse Practitioner Clinical Practicum II** G 1 - 10

Application of advanced practice nursing theories, research findings, skills and interventions, including pharmacological management to the care of adults, focusing on health promotion needs and the most commonly seen diagnoses in primary care.

Prereq: 7228.01.

**7228.03 Advanced Practice Adult Gerontology Primary Care Nurse Practitioner Clinical Practicum III** G 9

Application of advanced practice nursing theories, research findings, skills and interventions, including pharmacological management to the care of adults, focusing on health promotion needs and the most commonly seen diagnoses in primary care.

Prereq: 7228.02.

**7230 Clinical Nurse Leader (CNL) Roles and Responsibilities** G 2

Introduction to the roles and responsibilities of the Clinical Nurse Leader (CNL), with an emphasis on the value-added aspects of the CNL role for patient care, outcomes, and healthcare environments.

Prereq: Enrollment in the Clinical Nurse Leader (CNL) specialty track of the M.S. in Nursing program, or permission of instructor.

**7231 Pharmacology for the Clinical Nurse Leader** G 3

Emphasis on advanced knowledge in pharmacology in relation to the Clinical Nurse Leader (CNL) role across healthcare settings. The role of the CNL in patient teaching for safe and effective medication administration and assessment of medication management in chronic disease is emphasized.

Prereq: Enrollment in the Clinical Nurse Leader (CNL) specialty track of the M.S. in Nursing program; or permission of instructor.



<b>7238.01</b>	<b>Introduction to Clinical Nurse Leader Practice</b>	<b>G</b>	<b>7</b>
Introduction to the role, responsibilities, practice, and skills of the Clinical Nurse Leader. Prereq: Grad standing in Nursing, and Clinical Nurse Leader specialty.			
<b>7238.02</b>	<b>Transition to Clinical Nurse Leader Practice</b>	<b>G</b>	<b>8</b>
Intensive clinical experience to apply theories and engage fully in the role of the Clinical Nurse Leader (CNL). Prereq: 7238.01.			
<b>7258.01</b>	<b>Foundational Knowledge for Nursing and Health Systems Management</b>	<b>G</b>	<b>1 - 10</b>
Study of the theoretical knowledge that provides the foundation for Nursing leadership in program and health systems management across the continuum of care. Prereq: 7403 and admission to the Nursing and Health Systems Management specialty. Not open to students with credit for 807, 808, or 809.			
<b>7258.02</b>	<b>Skills for Nursing and Health Systems Management</b>	<b>G</b>	<b>1 - 10</b>
Study of the skills, strategies, and techniques necessary for program and health systems Nursing management across the continuum of care. Prereq: 7258.01. Not open to students with credit for 807, 808, or 809.			
<b>7260</b>	<b>Concepts and Issues in Advanced Family Nursing</b>	<b>G</b>	<b>2</b>
Issues of health care for family units; development of personalized health care strategies, culturally appropriate plans, examination of sociocultural policies affecting family health. Prereq: Grad standing in Nursing, or enrollment in the Specialization in Pediatric Occupational Therapy. Not open to students with credit for 721.			
<b>7268.01</b>	<b>Advanced Practice Family Nurse Practitioner Clinical Practicum I</b>	<b>G</b>	<b>5 - 10</b>
Focus on primary healthcare of individuals and families across the lifespan. Emphasis on knowledge and skills for patient-centered evidence-based practice, clinical reasoning/judgment for advanced practice nursing, health and wellness, and common pathological conditions. Prereq: 7260, 7403, 7410, 7450, 7470, 7483, 7491, 7500, 7780, and enrollment in M.S. in Nursing program, and enrollment in the Family Nurse Practitioner specialty track; or 7410, 7450, and 7470, and enrollment in BSN-DNP; or permission of instructor.			
<b>7268.02</b>	<b>Advanced Practice Family Nurse Practitioner Clinical Practicum II</b>	<b>G</b>	<b>5 - 11½</b>
Focus on primary healthcare of individuals and families across the lifespan. Emphasis on interprofessional partnerships, community engagement, and diverse family needs by developmental stage: reproductive, childrearing, aging, caregiving. Prereq: 7268.01.			
<b>7268.03</b>	<b>Advanced Practice Family Nurse Practitioner Clinical Practicum III</b>	<b>G</b>	<b>4 - 12</b>
Focus on primary healthcare of individuals and families across the life span. Emphasis on integration of scientific foundations, social determinants of health, and interprofessional leadership to manage complex healthcare needs of patients. Prereq: 7268.02.			
<b>7280</b>	<b>Conceptual Frameworks for Nurse-Midwifery</b>	<b>G</b>	<b>2</b>
Theoretical, structural, historical, and political/legal foundations of nurse-midwifery in the United States and internationally. Prereq: Enrollment in the Nurse-Midwifery specialty. Not open to students with credit for 724.			
<b>7281</b>	<b>Advanced Reproductive Dynamics</b>	<b>G</b>	<b>3</b>
Principles of reproductive anatomy and physiology including puberty, genetics, pregnancy, embryonic/fetal development, parturition, puerperium, lactation, and menopause in relationship to advanced practice nursing care. Prereq: Enrollment in the Nurse-Midwifery or Women's Health specialty track. Not open to students with credit for 722.			
<b>7282</b>	<b>Labor and Birth Clinical Immersion</b>	<b>G</b>	<b>1 - 2</b>
Provides orientation to intrapartum care and the role of the health care team for specialty students without prior experience in this clinical area. Prereq: Enrollment in the Nurse-Midwifery, or Dual Nurse-Midwifery and Women's Health specialty; or permission of the course head.			
<b>7288.01</b>	<b>Advanced Practice Nursing: Nurse-Midwifery Clinical Practicum I</b>	<b>G</b>	<b>1 - 8</b>
Application of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing care. Prereq: 7281, 7410, 7450, and 7470.			
<b>7288.02</b>	<b>Advanced Practice Nursing: Nurse-Midwifery Clinical Practicum II</b>	<b>G</b>	<b>1 - 11</b>
Application of theories, research findings, skills, and interventions including pharmacological management, during the provision of nurse-midwifery care to women and their families. Prereq: 7288.01.			
<b>7288.03</b>	<b>Advanced Practice Nursing: Nurse-Midwifery Clinical Practicum III</b>	<b>G</b>	<b>1 - 11</b>
Application of theories, research findings, complex skills, and interventions including pharmacological management, during the provision of nurse-midwifery care to women and their families. Prereq: 7288.02.			

<b>7288.04</b>	<b>Advanced Practice Nursing: Nurse-Midwifery Clinical Practicum IV</b>	<b>G</b>	<b>1 - 10</b>
Integration of theories, research findings, skills, and interventions including pharmacological management, during the provision of nurse-midwifery care to women and their families. Prereq: 7288.03. Not open to students with credit for 859.			
<b>7298.01</b>	<b>Advanced Practice Nursing: Women's Health Clinical Practicum I</b>	<b>G</b>	<b>1 - 8</b>
Application of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing care. Prereq: 7281, 7410, 7450, and 7470.			
<b>7298.02</b>	<b>Advanced Practice Nursing: Women's Health Clinical Practicum II</b>	<b>G</b>	<b>1 - 10</b>
Application of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing care to women and their families. Prereq: 7298.01.			
<b>7298.03</b>	<b>Advanced Practice Nursing: Women's Health Clinical Practicum III</b>	<b>G</b>	<b>1 - 10</b>
Integration of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing care to women and their families. Prereq: 7298.02.			
<b>7299.01</b>	<b>Advanced Practice Nursing: Dual Nurse-Midwifery &amp; Women's Health Clinical Practicum I</b>	<b>G</b>	<b>1 - 8</b>
Application of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing care. Prereqs: 7281, 7410, 7450, and 7470.			
<b>7299.02</b>	<b>Advanced Practice Nursing: Dual Nurse-Midwifery &amp; Women's Health Clinical Practicum II</b>	<b>G</b>	<b>1 - 12</b>
Application of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing/nurse-midwifery care to women and their families. Prereq: 7299.01.			
<b>7299.03</b>	<b>Advanced Practice Nursing: Dual Nurse-Midwifery &amp; Women's Health Clinical Practicum III</b>	<b>G</b>	<b>1 - 12</b>
Application of theories, research findings, complex skills, and interventions including pharmacological management, during the provision of advanced practice nursing/nurse-midwifery care to women and their families. Prereq: 7299.02.			
<b>7299.04</b>	<b>Advanced Practice Nursing: Dual Nurse-Midwifery &amp; Women's Health Clinical Practicum IV</b>	<b>G</b>	<b>1 - 11</b>
Integration of theories, research findings, skills, and interventions including pharmacological management, during the provision of advanced practice nursing/nurse-midwifery care to women and their families. Prereq: 7299.03. Not open to students with credit for 859.			
<b>7302</b>	<b>Advanced Health Assessment of the Neonate</b>	<b>G</b>	<b>3</b>
Development of advanced health assessment and psychomotor skills to comprehensively assess and manage high-risk neonates. Prereq: Enrollment in the Neonatal NP or CNS specialties. Grad Entry students must have successfully completed all pre-licensure coursework (6100, 6240S, 6260, 6270, 6271, 6340, 6410, 6420, 6430, and 6480).			
<b>7303</b>	<b>Advanced Newborn/Infant Pharmacology</b>	<b>G</b>	<b>4</b>
Pharmacotherapeutic principles applied to the high-risk neonate/infant with an emphasis on pharmacokinetics and pharmacodynamics when applied to neonatal physiology. Prereq: Enrollment in the Neonatal NP specialty.			
<b>7304</b>	<b>Developmental Care of the High-Risk Neonate and Family</b>	<b>G</b>	<b>2</b>
Examination of concepts and research that impact the developmental trajectory of the high-risk neonate and family. Prereq: Enrollment in the Neonatal NP or CNS specialties, or enrollment in the Specialization in Pediatric Occupational Therapy or Pediatric Physical Therapy.			
<b>7305</b>	<b>Developmental Physiology and Pathophysiology of the High-Risk Neonate</b>	<b>G</b>	<b>6</b>
Biological basis for nursing care of the high-risk neonate, incorporating analysis and synthesis of principles of embryology, developmental physiology, and pathophysiology. Prereq: Enrollment in the Neonatal Nurse Practitioner specialty track of the M.S. in Nursing program. Not open to students with credit for 7300 or 7301.			
<b>7308.01</b>	<b>Advanced Practice Nursing: Care of the High-Risk Neonate I</b>	<b>G</b>	<b>2 - 7</b>
Application of theories, research findings, and interventions for advanced practice nurses in the care of neonates and their families, with a focus on high-risk deliveries. Prereq: 7302 and 7305.			
<b>7308.02</b>	<b>Advanced Practice Nursing: Care of the High-Risk Neonate II</b>	<b>G</b>	<b>1 - 10</b>
Application of theories, research findings, and interventions for advanced practice nurses managing care in the neonatal intensive care unit. Prereq: 7303 and 7308.01.			

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<b>7308.03</b>	<b>Advanced Practice Nursing: Care of the High-Risk Neonate III</b>	<b>G</b>	<b>1 - 10</b>
Application of theories, research findings, and interventions for advanced practice nurses in the care of high-risk neonate and their families in a variety of settings. Prereq: 7308.02.			
<b>7318.01</b>	<b>Neonatal Clinical Nurse Specialist Practicum I</b>	<b>G</b>	<b>7</b>
First of two practicums to apply advanced practice nursing theories, research findings, skills and interventions, including pharmacological management in the care of neonates by clinical nurse specialists across a variety of care settings. Prereq: 7300, 7301, 7302, 7303, and enrollment in the Neonatal CNS specialty.			
<b>7318.02</b>	<b>Neonatal Clinical Nurse Specialist Practicum II</b>	<b>G</b>	<b>7</b>
Second of two practicums advanced practice nursing theories, research findings, skills and interventions, including pharmacological management in the care of neonates by clinical nurse specialists across a variety of care settings. Prereq: 7300, 7301, 7302, 7303, 7318.01 and enrollment in the Neonatal CNS specialty.			
<b>7330</b>	<b>Advanced Pediatric Health Assessment</b>	<b>G</b>	<b>4</b>
Advanced knowledge and skills in the health assessment of children birth through young adulthood with an emphasis on sophisticated clinical reasoning. Prereq: Enrollment in Pediatric NP Primary or Acute Care Specialty. Grad Entry students must have successfully completed all pre-licensure coursework (6100, 6240S, 6260, 6270, 6271, 6340, 6410, 6420, 6430, and 6480).			
<b>7331</b>	<b>Assessment and Management of Child and Adolescent Mental Health Issues</b>	<b>G</b>	<b>3</b>
Application of theories, research findings, assessment, and clinical management principles to evidence-based child and adolescent mental health screening, early intervention, and mental health promotion. Prereq: Enrollment in M.S. in Nursing program, prior successful completion of an advanced health assessment course, and concurrent enrollment in an advanced pediatric acute or primary care clinical practicum course (Nursing 7218.01, Nursing 7218.02, Nursing 7338.01, or Nursing 7338.02); or permission of instructor.			
<b>7332</b>	<b>Advanced Health Assessment of Infants, Children, and Adolescents</b>	<b>G</b>	<b>1</b>
Development of advanced assessment skills with emphasis on acquisition of pertinent assessment data for pediatric clients from birth through adolescence. Prereq: Enrollment in the M.S. in Nursing program, or permission of instructor. This course is graded S/U.			
<b>7338.01</b>	<b>Advanced Nursing Practice in Pediatric Primary Care I</b>	<b>G</b>	<b>3 - 8</b>
Application of theories, research findings, skills, and interventions including pharmacological management to advanced practice nursing in pediatric health promotion and preventive care. Prereq: 7330. Not open to students with credit for 859.			
<b>7338.02</b>	<b>Advanced Nursing Practice in Pediatric Primary Care II</b>	<b>G</b>	<b>3 - 10</b>
Application of theories, research findings, skills, and interventions including pharmacological management to advanced practice nursing in pediatric health promotion and preventive care. Prereq: 7338.01.			
<b>7338.03</b>	<b>Advanced Nursing Practice in Pediatric Primary Care III</b>	<b>G</b>	<b>3 - 9</b>
Application of theories, research findings, skills, and interventions including pharmacological management to advanced practice nursing in the care of children with common chronic conditions. Prereq: 7338.02.			
<b>7340</b>	<b>Neuroscience Principles and Concepts Relevant to Psychiatric and Mental Health</b>	<b>G</b>	<b>3</b>
Neurobiological bases of brain-mind-behavior relationships in mental health and illness, including chemical dependence. The promotion, maintenance, and restoration of central nervous system homeostasis will be emphasized. Prereq: Grad standing in Nursing and the Psychiatric Mental Health Nursing specialty. Not open to students with credit for 740.			
<b>7341</b>	<b>Advanced Psychiatric and Mental Health Nursing: Therapies across the Lifespan</b>	<b>G</b>	<b>4</b>
Advanced nursing clinical therapeutic interventions with persons across the lifespan diagnosed with mental illness and/or substance abuse. Prereq: Grad standing and enrollment in the Psychiatric Mental Health Nursing specialty. Not open to students with credit for 745 or 777.			
<b>7342</b>	<b>Motivational Interviewing</b>	<b>G</b>	<b>2</b>
Critical analysis of theoretical and research findings involved in the conduct of motivational interviewing to create behavior change and improve health outcomes. Prereq: Grad standing in Nursing.			
<b>7343</b>	<b>Introduction to Nurse Coaching</b>	<b>G</b>	<b>3</b>
Provides an overview of the nurse coach role, theory and competencies with application to nurse coaching skills. Prereq: Grad standing, and enrollment in the Nurse Coaching certificate program; or permission of instructor.			
<b>7344</b>	<b>Evidence-Based Coaching in Interprofessional Practice</b>	<b>G</b>	<b>4</b>
Review of evidence-based coaching approaches based on the science of behavior change and integrated within patient-centered, interdisciplinary practice. Prereq: Grad standing, or permission of instructor.			

<b>7345</b>	<b>Advanced Nurse Coaching</b>	<b>G</b>	<b>3</b>
Addresses nurse coaching competencies that promote whole person health. Prereq: 7343.			
<b>7346</b>	<b>Introduction to Health and Wellness Coaching</b>	<b>G</b>	<b>3</b>
Provides an overview of the health and wellness coach role, theory and competencies with application to coaching skills. Prereq: Enrollment in the Health and Wellness Coaching certificate program, and Grad standing; or permission of instructor.			
<b>7347</b>	<b>Advanced Health and Wellness Coaching</b>	<b>G</b>	<b>3</b>
Builds upon introductory coaching course to refine coaching skills that promote whole person health. Prereq: 7346.			
<b>7348.01</b>	<b>Advanced Practice Psychiatric and Mental Health Nursing Clinical Practicum I</b>	<b>G</b>	<b>1 - 5</b>
Application of advanced practice psychiatric and mental health nursing biopsychosocial interventions with individuals experiencing mental illness and chemical dependence. Prereq: 7340 and 7341.			
<b>7348.02</b>	<b>Advanced Practice Psychiatric and Mental Health Nursing Clinical Practicum II</b>	<b>G</b>	<b>1 - 11</b>
Application of advanced practice psychiatric and mental health nursing biopsychosocial interventions with individuals experiencing mental illnesses and chemical dependence. Prereq: 7348.01.			
<b>7348.03</b>	<b>Advanced Practice Psychiatric and Mental Health Nursing</b>	<b>G</b>	<b>10</b>
Application of advanced practice psychiatric and mental health nursing biopsychosocial interventions with individuals experiencing mental illness and chemical dependence. Prereq: 7348.02.			
<b>7350</b>	<b>Psychopharmacology Across the Lifespan</b>	<b>G</b>	<b>3</b>
Pharmacokinetic principles and application of evidence-based clinical decision-making in relation to Advanced Practice Registered Nurse psychotropic medication prescribing across the lifespan. Prereq: 7470, or permission of instructor.			
<b>7378</b>	<b>Advanced Nursing Practice Adult Clinical Nurse Specialist Clinical Practicum</b>	<b>G</b>	<b>1 - 10</b>
Application of theories, research findings, skills and interventions, including pharmacologic, for advanced practice in the care of adults with all types of acute and chronic health problems. Prereq: 7228.01. Not open to students with credit for 859.			
<b>7378.01</b>	<b>Adult Gerontology Clinical Nurse Specialist Practicum I</b>	<b>G</b>	<b>10</b>
Application of advanced practice nursing theories, research findings, skills and interventions, including pharmacological management to the management of adults and older adults with acute and chronic health problems. Prereq: 7410, 7450, and 7470.			
<b>7378.02</b>	<b>Adult Gerontology Clinical Nurse Specialist Practicum II</b>	<b>G</b>	<b>10</b>
Application of advanced practice nursing theories, research findings, skills and interventions, including pharmacological management of adults and older adults with acute and chronic health problems. Prereq: 7410, 7450, 7470, and 7378.01.			
<b>7402</b>	<b>Economic Evaluation of Healthcare Interventions</b>	<b>G</b>	<b>3</b>
Introduction to economic evaluation of healthcare interventions and services, including evaluating costs and health outcomes, using results to inform resource allocation, interpretation and evaluation of economic evaluations in the literature, and decision analysis in healthcare.			
<b>7403</b>	<b>Innovation Leadership in Advanced Nursing Practice</b>	<b>G</b>	<b>3</b>
Analysis of organizational leadership and ethical essentials necessary to deliver high quality patient care in diverse settings. Prereq: Enrollment in Grad Nursing.			
<b>7404</b>	<b>Project Management for Healthcare and Clinical Research</b>	<b>G</b>	<b>3</b>
Principles of project management and strategic planning in healthcare, clinical research, and regulatory settings. Prereq: 7782, or permission of instructor.			
<b>7405</b>	<b>Clinical Research Study and Site Management</b>	<b>G</b>	<b>3</b>
Fundamental principles of clinical research operations from study site selection to study closure from the perspective of sponsors and clinical research sites including an introduction to database design, management, quality assurance, and reporting for site and sponsor operations. Prereq: 7770 or Phr 7770, or permission of instructor. Cross-listed in Phr.			
<b>7410</b>	<b>Advanced Health Assessment</b>	<b>G</b>	<b>2 - 4</b>
Development of advanced health assessment skills. Emphasis on acquisition of pertinent assessment data across the life span for advanced nursing care for multiple specialties. Prereq: 7450, or enrollment in the Master of Respiratory Therapy (MRT) program. Grad Entry students must have successfully completed all pre-licensure coursework (6100, 6240S, 6260, 6270, 6271, 6340, 6410, 6420, 6430, and 6480). Cross-listed in RespThr.			

**7450 Pathophysiology of Altered Health States G 5**

Analysis of theories and research regarding alterations of health states across the life span with an emphasis on pathophysiological processes.  
Prereq: Grad standing in Nursing or permission of instructor. Not open to students with credit for 703 or 704.

**7470 Advanced Pharmacology in Nursing G 4**

Pharmacokinetic principles and clinical application and principles of the use of drugs and therapeutic devices in the prevention of illness and maintenance of health. Meets criteria for APN's prescribing in Ohio.

Prereq: 7450. Not open to students with credit for 706. Repeatable to a maximum of 12 cr hrs or 3 completions.

**7481 Data Management and Informatics in Clinical Research G 3**

Introduction to fundamental principles of clinical research data management and informatics to include the acquisition and management of data during clinical research studies, including source data, data entry, data quality assurance, reporting, and security.

Prereq: 7782, or permission of instructor.

**7482 Principles of Quality Management for Medical Product Development G 3**

Concepts and application of total quality management for federal regulation of medical product development including drugs and medical devices.

Prereq: 7405, Phr 7405, or permission of instructor.

**7483 Quality Improvement and Informatics G 3**

Explores advanced concepts of collaboration, design, leadership, implementation and evaluation of quality improvement initiatives in health care utilizing information technology strategies.

Prereq: Enrollment in Grad Nursing.

**7484 Informatics G 1**

To refine, expand, and extend clinical transformation education to all medical, nursing, and other health professional students.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in SocWork.

**7491 Health Promotion and Disease Prevention across the Life Span G 3**

Analyze strategies to encourage change in both individual's and population's health behaviors that influence risk reduction in multiple settings. Develop educational strategies utilizing advanced critical thinking.

Prereq: Enrollment in Grad Nursing or Obesity Sciences Graduate Interdisciplinary Specialization.

**7495 Community Health Education G 1**

Students will be assigned to a community clinic or agency to assist with improving the health of underserved populations in Central Ohio. Small groups of students will develop, implement, and evaluate a community health education program.

Prereq: Grad standing in Nursing, and permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

**7496 Opioid Use Disorder G 2**

Evidence-based training in opioid use disorder (OUD) prevention, diagnosis, and treatment, emphasizing Medication-Assisted Treatment (MAT), to interdisciplinary teams of pharmacy, health and rehabilitation sciences, nursing, medicine and social work students to assure an interprofessional work force prepared to address the opioid epidemic.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in SocWork.

**7500 Health Policy and Advocacy G 2**

Analysis of the U.S. health care delivery system and the policy making process, with an emphasis on the social, political and economic factors affecting the delivery of Nursing services.

Prereq: Grad standing in Nursing, or permission of instructor.

**7530 Instructional Strategies in Clinical Teaching G 3**

The primary focus of this course is the differentiation of best pedagogical practices for effective teaching in clinical settings.

Prereq: Grad standing and active Registered Nurse (RN) licensure.

**7533 Teaching Tech: Classroom Technologies G 2**

Explore theory behind selection and use of education technology to engage students in the classroom. Theory will be enhanced with practice and application. Basic understanding of education technology and teaching theory required.

Prereq: Grad standing, or permission of instructor.

**7534 Teaching Tech: ePortfolios G 1**

The theory behind use and selection of ePortfolio technology will be enhanced with hands-on practice and application of production software.

Prereq: Grad standing, or permission of instructor.

**7536 Principles of Instructional Design for Nurses G 3**

Theoretical and practical approaches to creation of learning experiences for nursing and health education with an emphasis on backward design and evidence-based instructional design strategies.

Prereq: Grad standing in Nursing; or permission of instructor.

**7537 Assessment and Evaluation in Nursing Education G 3**

Principles and processes involved in assessment and evaluation of student learning, courses, curricula, program outcomes, and teaching practices.

Prereq: Grad standing in Nursing, or permission of instructor.

**7538 Teaching in Nursing G 3**

Application of best pedagogical practices in selected Nursing education experiences.

Prereq: 7530, 7536, and 7537; or permission of instructor.

**7560 Clinical Trials I: Design and Regulation G 3**

This course provides a fundamental overview of clinical trial design, methods, and regulation with an emphasis on medical product development, clinical trial protocols, preclinical research requirements, and the appraisal of published clinical trials.

Prereq: Admission to the MS Pharmacology program, or permission of instructor. Not open to students with credit for Nursing or Phr 7770. Cross-listed in BioPhrm and Phr.

**7561 Clinical Trials II: Site Management and Study Leadership G 3**

This course provides a fundamental overview of best practices of clinical trial study and site management, including an emphasis on data, safety, and quality management, and study team leadership.

Prereq: 7560, BioPhrm 7560, or Phr 7560, or permission of instructor. Not open to students with credit for 5402 or Phr 5402. Cross-listed in BioPhrm and Phr.

**7599 Culminating Project in Clinical Research G 3**

The culminating project is an independent scholarly project that allows students to apply skills and competencies acquired across the master's program in clinical research. During the course, students will also complete their professional ePortfolio.

Prereq: Enrollment in the master's program in Applied Clinical and Preclinical Research, or permission of instructor. Cross-listed in Phr.

**7600 Longitudinal Practice G ½**

Experiential opportunity to build competencies in communication, physical examination, and clinical reasoning emphasizing active participation in team-based care.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in SocWork.

**7601 Patients within Populations G ½**

Incorporation of patients' concerns, health care provider goals and skills in team based care for patients vulnerable for illnesses and health issues as a result of their ages, social and demographic conditions, culture, and lifestyle choices.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in SocWork.

**7603 Advanced Management of Relationship-Centered Care G 2**

Precepted clinical experiences in advanced ambulatory and chronic care incorporating an interdisciplinary team care model in nursing and medicine, providing specialized to care for the patient with complex chronic care needs.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U.

**7604 Hotspotting G 1**

Strategic use of data to reallocate resources to a small subset of high-needs, high-cost patients among interdisciplinary teams of pharmacy, health and rehabilitation sciences, nursing, medicine and social work students.

Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in SocWork.

**7717 Interdisciplinary Perspective on Developmental Disabilities G 3**

Provides an introduction to the psychosocial, medical, and educational implications of developmental disabilities.

Prereq: permission of instructor. Not open to students with credit for 717.01 or 717.03. Cross-listed in EduSt, HthRhSc, Psych, SocWork, and SphHrng.

**7718 Interdisciplinary Perspective on Autism Spectrum Disorders G 3**

Teaches the analytical skills necessary to comprehend and formulate an interdisciplinary framework relating to major scientific and theoretical perspectives in autism spectrum disorders.

Prereq: permission of instructor. Not open to students with credit for 717.01 or 717.02. Cross-listed in EduSt, HthRhSc, Psych, SocWork, and SphHrng.

**7770 Fundamentals of Medical Product Development and Regulation G 3**

Function of clinical research in medical product development and the regulatory process of new medical products. Laws and regulations concerning the development, testing, commercialization, and total product life cycle for medical products. Regulations governing the conduct of clinical research, including study sponsors, investigators, and Institutional Review Boards.

Prereq: Admission to the Master's program in Applied Clinical and Preclinical Research, or permission of instructor. Cross-listed in Phr.

## 354 Nursing

<b>7779</b>	<b>Evidence Based Practice for Interprofessional Teams</b>	<b>G</b>	<b>3</b>
Built around the Evidence-based Practice (EBP) and Interprofessional Education Collaborative (IPEC) competencies, learners will build the knowledge and skills of EBP needed to address relevant issues in healthcare in order to improve quality, safety and outcomes for patients, populations, organizations and the communities in which they exist. Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor.			
<b>7780</b>	<b>Evidence Based Nursing Scholarship</b>	<b>G</b>	<b>3</b>
Introduction to and application of evidence-based practice (EBP). Includes EBP steps, competencies, and strategies for mentoring and leading integration and synthesis of the EBP process for improving practice and outcomes. Prereq: Grad standing in Nursing, or permission of instructor.			
<b>7781</b>	<b>Responsible Conduct of Research</b>	<b>G</b>	<b>3</b>
Concepts and policies for the responsible conduct of research (RCOR), Institutional Review Boards and dissemination of findings. Prereq: Grad standing.			
<b>7782</b>	<b>Clinical Research Design and Methods</b>	<b>G</b>	<b>3</b>
Study of research design and methods used in clinical research. Measurement issues, bias and confounding, statistical considerations, evaluation of published clinical research designs, and protocol and proposal development. Prereq: Admission to Master's program in Applied Clinical and Preclinical Research, or permission of instructor. Cross-listed in Phr.			
<b>8110</b>	<b>Scholarly Writing for Nurse Scientists</b>	<b>G</b>	<b>3</b>
Scholarly manuscript writing for refereed publications for nursing and research scientist audiences. Emphasis on writing style and process, with secondary emphasis on journal selection, author guidelines, peer review, and managing revisions. Prereq: Enrollment in PhD program in Nursing, or permission of instructor.			
<b>8193</b>	<b>Individual Studies in Nursing</b>	<b>G</b>	<b>1 - 5</b>
Students will gain skills and knowledge within a focused area of study within the area of expertise of a nursing faculty mentor. The course will expose students to novel scholarly activities and provide individualized learning opportunities. Prereq: Enrollment in Nursing program and permission of instructor. Repeatable to a maximum of 20 or hrs or 4 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Nursing</b>	<b>G</b>	<b>0 - 5</b>
Group studies of special problems in nursing. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 or hrs or 4 completions.			
<b>8400</b>	<b>Leadership for Nurse Scientists</b>	<b>G</b>	<b>3</b>
Examine current professional issues facing the nurse scientist in academia, practice, and research. Prereq: Enrolled in PhD in Nursing program.			
<b>8420</b>	<b>Seminar in Life Course Health Development</b>	<b>G</b>	<b>1</b>
This seminar provides the foundations for the life course development framework, including a review of the theoretical models, the supporting evidence and critiques. Ethical considerations specific to the framework will be discussed throughout the seminar as well as the Maternal and Child Health Leadership competencies. Prereq: Appointment as T32 Fellow, or permission of instructor. Repeatable to a maximum of 12 or hrs. This course is graded S/U.			
<b>8440</b>	<b>Philosophy of Science and Development of Nursing Knowledge</b>	<b>G</b>	<b>3</b>
Examines historical, philosophical, and theoretical basis for nursing science. Prereq: Enrollment in PhD program in Nursing.			
<b>8441</b>	<b>Health Determinant Models for Nursing Science</b>	<b>G</b>	<b>3</b>
Integrates scientific approaches used to investigate, understand and improve health status within the context of Nursing Science. Prereq: 8440, or permission of instructor.			
<b>8460</b>	<b>Integrative Reviews in Nursing</b>	<b>G</b>	<b>3</b>
Foundation for conducting a systematic integrative review of nursing and health related research and dissemination of scientific writing. Prereq: 8783.			
<b>8462</b>	<b>Grant Writing for Nursing</b>	<b>G</b>	<b>3</b>
Introduction to the principles and fundamentals of writing and critiquing research grant proposals in nursing science. Prereq: 8440, 8460, and 8783.			
<b>8510</b>	<b>Ethics in Healthcare Practice, Research and Policy</b>	<b>G</b>	<b>2</b>
Study of the central ethical dilemmas facing Nursing in health care practice, research, and policy. Prereq: Grad standing in Nursing or permission of instructor. Not open to students with credit for 755.			
<b>8780</b>	<b>Research Methods I</b>	<b>G</b>	<b>3</b>
Survey of quantitative design and measurement approaches relevant to nursing and health. Emphasis is placed on experimental designs and measurement in nursing and health research. Prereq: Enrollment in PhD program in Nursing, or permission of instructor. Not open to students with credit for 902.01 or 912.			

<b>8783</b>	<b>Quantitative Design for Nursing Research</b>	<b>G</b>	<b>3</b>
Quantitative designs relevant to research in nursing and health. Emphasis is placed on experimental and quasi-experimental designs in nursing and health-related research. Prereq: Enrollment in PhD in Nursing program.			
<b>8784</b>	<b>Qualitative Design for Nursing Research</b>	<b>G</b>	<b>3</b>
Survey of qualitative and mixed methods approaches relevant to nursing and health. Emphasis is placed on observational research designs in nursing and health research. Prereq: Enrolled in PhD in Nursing program.			
<b>8785</b>	<b>Measurement for Nursing and Health</b>	<b>G</b>	<b>3</b>
Measurement theories and principles relevant to nursing science. Emphasis is on psychobiobehavioral measurement in nursing and health-related research. Prereq: 8440 and 8783.			
<b>8786</b>	<b>Advanced Design for Nursing</b>	<b>G</b>	<b>3</b>
Advanced quantitative designs relevant to evaluating causal relationships in nursing and health science disciplines. Emphasis is on multi-level, experimental and quasi-experimental designs appropriate to individual and population health research. Prereq: 8783, 8784, and 8785.			
<b>8890</b>	<b>Professional Issues in Nursing</b>	<b>G</b>	<b>½ - 2</b>
Examine professional issues facing the nurse scientist in academia, practice, and research. Prereq: Enrollment in PhD program in Nursing; successful completion of the PhD Candidacy Examination. Repeatable to a maximum of 8 or hrs or 10 completions. This course is graded S/U.			
<b>8891.01</b>	<b>Genetics and Genomics for Nursing Science</b>	<b>G</b>	<b>3</b>
Examine emerging topics in genomics in the improvement of human health and quality of life in individuals, families, and communities from a nursing science perspective. Prereq: 8440, 8441, and 8783.			
<b>8891.02</b>	<b>Secondary Analysis of Complex Survey Data for Nursing and Health Research</b>	<b>G</b>	<b>3</b>
Develop and conduct a secondary data analysis of data from a nursing science perspective. Emphasis on design and methods with an understanding of data management and various analytic tools. Prereq: Course in multiple regression.			
<b>8891.03</b>	<b>Critical and Sensitive Periods for Health Development</b>	<b>G</b>	<b>3</b>
Focus on the effects of social, psychological, biological, and behavioral factors that influence health status (health determinants) as they occur across the lifespan with a particular focus on critical and sensitive periods of health development. Examination of health outcomes under varying conditions and across populations. Prereq: 8441.			
<b>8980</b>	<b>Research Residency</b>	<b>G</b>	<b>1 - 10</b>
Doctoral research training through participation in on-going research of graduate faculty. Prereq: 8440, 8441, 8460, 8783, and 8784. Repeatable to a maximum of 20 or hrs or 4 completions. This course is progress graded (S/U).			
<b>8999</b>	<b>Dissertation</b>	<b>G</b>	<b>1 - 6</b>
Dissertation research involving the generation of new knowledge that will contribute to nursing science. Develop skills needed for transition to a scientific career. Prereq: Successful completion of PhD in Nursing Candidacy Examination. Repeatable to a maximum of 90 or hrs or 15 completions. This course is graded S/U.			

## Nursing Advancement

<b>2193</b>	<b>Individual Studies in Nursing Advancement</b>	<b>U</b>	<b>1 - 4</b>
Student will gain knowledge and skills within the area of expertise of a nursing faculty mentor. The course will provide individualized learning opportunities. Prereq: Enrollment in the RN-BSN program. Repeatable to a maximum of 20 or hrs or 5 completions.			
<b>2440</b>	<b>Foundations and Contemporary Issues for Registered Nurses</b>	<b>U</b>	<b>3</b>
Provides the framework for exploration of professional issues in contemporary nursing and health care for nurses pursuing a baccalaureate degree. Prereq: Enrollment in the RN to BSN program. Not open to students with credit for Nursing 302.			
<b>2780</b>	<b>Research for Evidence Based Nursing Practice</b>	<b>U</b>	<b>3</b>
An introduction to evidence based nursing practice and the research process. Prereq: Enrollment in the RN to BSN program. Not open to students with credit for 390.			
<b>3110</b>	<b>Health Assessment Across the Lifespan</b>	<b>U</b>	<b>3</b>
Development of health assessment across the lifespan. Prereq: Enrollment in the RN-BSN program, or permission of instructor.			
<b>3111</b>	<b>Palliative and End of Life Care</b>	<b>U</b>	<b>3</b>
Foundation for palliative care through exploration of individual, family, and loved ones' needs at the end of life. Prereq: Enrollment in the RN-BSN program, or permission of instructor.			

3112	Failure to Rescue in Nursing	U	3
This course will explore the impact of failure to rescue on patient outcomes and provide evidence-based strategies and skills to prevent failure to rescue in healthcare. Prereq: Enrollment in the RN-BSN program, or permission of instructor.			
3113	RN Practice in Primary Care and Substance Use Disorder	U	3
The course will address the opiate use disorder in primary care. Prereq: Enrollment in Primary Care Workforce Development Certificate (Category 1b), or Registered Nurses (RNs) in Primary Care Workforce Development Certificate (Category 4); or permission of instructor.			
3114	Care Coordination and Transition in Care	U	3
This course will address the care coordination and transitions in care when caring for patients. Emphasis will be placed on the needs of patients with chronic diseases to include mental health and substance use conditions with a focus on population outcomes. Prereq: Enrollment in Primary Care Workforce Development Certificate (Category 1b), or Registered Nurses (RNs) in Primary Care Workforce Development Certificate (Category 4); or permission of instructor.			
3115	Telehealth Assessment and Management in Primary Care	U	3
Application of RN primary care delivery and design for population health initiatives. Prereq: Enrollment in Primary Care Workforce Development Certificate (Category 1b), or Registered Nurses (RNs) in Primary Care Workforce Development Certificate (Category 4); or permission of instructor.			
3116	Evidence-Based Coaching in Interprofessional Practice	U	3
Introduction to evidence-based coaching approaches for lifestyle behavior change as integrated within interprofessional practice. Prereq: Enrollment in Primary Care Workforce Development Certificate (Category 1b), or Registered Nurses (RNs) in Primary Care Workforce Development Certificate (Category 4); or permission of instructor.			
3117	RN Practice in Primary Care	U	3
This course will provide an introduction to RN primary care delivery and design for population health initiatives. Prereq: Enrollment in Primary Care Workforce Development Certificate (Category 1b), or Registered Nurses (RNs) in Primary Care Workforce Development Certificate (Category 4); or permission of instructor.			
3119	Primary Care Role Development	U	½ - 2½
This course will provide practicum experiences for Registered Nurse (RN) primary care delivery and design for population health initiatives. Prereq: Enrollment in the Category 1 Registered Nurses in Primary Care Workforce Development Certificate program, or permission of instructor. This course is graded S/U.			
3430	Cultural Competence in Health Care: US and Global Contexts	U	2
Introduction to the concepts and techniques for the provision of culturally competent care within the U.S. and across global contexts. Prereq: Enrollment in the RN to BSN program. Not open to students with credit for 440.			
4240	Concepts in Community Health Nursing	U	4
Study of community health nursing theory and principles applied to the nursing care of individuals, families, groups, communities, and populations. Prereq: 2440, 4780, and Social 1101; or permission of instructor.			
4400	Evolving Concepts in Nursing Leadership and Management	U	3
Exploration of leadership and management concepts as applied to nursing practice and the health care environment. Prereq: 4240, 4780, or permission of instructor. Not open to students with credit for Nursing 510.			
4402	Evolving Concepts in Leadership and Management	U	5
Exploration and application of leadership and management concepts as applied to nursing practice and the health care environment. Prereq: 2440 and 4240 and 4780, and enrollment in the RN-to-BSN program.			
4520	Health Care Informatics	U	2
Examination of informatics in health care emphasizing clinical information systems and the use of the information technology (IT) applications to support nursing practice. Prereq: Enrollment in the RN to BSN program. Not open to students with credit for Nursing 507.			
4600	Interprofessional Concepts	U	2
Examination of principles, competencies, and practices that support interprofessional collaboration, a culture of safety, and improve patient outcomes. Prereq: Enrollment in the RN-BSN program.			
4780	Evidence Based Practice: Transforming Healthcare	U	3
Examination of principles, competencies, practices, and skills that support implementation and sustainability of evidence-based practice in order to improve quality, safety and improve outcomes for patients, populations, providers, organizations, and communities across the globe. Prereq: Enrollment in RN to BSN program, or permission of instructor.			

## Nursing Practice

8193	Individual Studies	G	1 - 6
Advanced individual studies in selected areas for the DNP student. Prereq: Admission to the DNP program, or permission of instructor. Repeatable to a maximum of 6 or hrs or 2 completions. This course is graded S/U.			
8402	Innovation and Leadership Development for the DNP Nurse	G	2
Examination of leadership development to maximize innovation and positive organizational impact with an exploration of own leadership development. Prereq: Enrollment in DNP program, or permission of instructor.			
8403	Science of Practice Innovation	G	2
Scientific underpinnings for analyzing clinical situations in conjunction with appraising data, theories and concepts that guide nursing practice at the clinical doctoral level. Prereq: Enrollment in DNP program, or permission of instructor.			
8404	Nurse Executive Leadership	G	2
Analysis of the role of the DNP nurse executive within complex healthcare systems. Prereq: 8403.			
8480	Quality Improvement for the Doctor of Nursing Practice	G	2
Advanced concepts in collaboration, design, and leadership as they relate to the Prereq: Enrollment in DNP program, or permission of instructor.			
8490	Health Promotion in the Age of Personalized Health Care	G	2
Critical analysis of population-based factors that impact personal health and care including the social determinants of health contributing to health disparities, their synthesis with health behavior theories, and the evidence-based strategies to change behavior and improve outcomes. Prereq: Enrollment in the DNP program, or permission of instructor. Not open to students with credit for NursPrc 913.			
8500	Nursing Policy for Doctoral Nursing Practice	G	2
Principles of policy-making at the institutional, local, state, and federal levels to influence policy change affecting health care. Prereq: Enrollment in the DNP program, or permission of instructor. Not open to students with credit for NursPrc 940.03.			
8600	Organizational Culture	G	1
Analysis of complex culture in health care and the impact on organizational structure, relationships, evaluation, and outcomes. Prereq: 8402, and enrollment in DNP program; or permission of instructor.			
8610	Informatics for Leadership in Health and Healthcare	G	2
Health informatics, the evaluation of electronic health information resources and patient care technology, and application in DNP practice. Related policy, ethical, privacy, and disparity concerns related to access and use of healthcare data. Prereq: Enrollment in DNP program, or permission of instructor.			
8780	Clinical Effectiveness and Translation in Clinical Science	G	3
Theoretical underpinnings of nursing knowledge and critical appraisal of clinical relevant research related to clinical effectiveness and translational science concepts. Prereq: Admission to the DNP program, or permission of instructor. Not open to students with credit for NursPrc 951 or 953.			
8781	Methods and Measurement in Clinical Practice Scholarship	G	2
Concepts and principles of practice scholarship methods and measurement for doctoral level nursing practice. Prereq: Enrollment in DNP program, or permission of instructor.			
8782	Foundations of Evidence-Based Practice (EBP)	G	2
To distinguish the principles of evidence-based practice (EBP) integral to the DNP role. The focus is on identifying and understanding when to utilize evidence-based processes and implementation, dissemination, and sustainability strategies to improve practice and policy influencing healthcare outcomes. Prereq: Enrollment in the DNP program, or permission of instructor.			
8783	Implementing, Facilitating, and Sustaining EBP	G	2
Application of EBP principles and the change process to implement, facilitate, evaluate, and sustain evidence-based-practice changes to improve healthcare. Prereq: 8781 and 8782.			
8784	Disseminating Evidence to Advance Best Practices, Policy, and Outcomes in EBP	G	2
Internalization of the roles and responsibilities of the DNP in EBP through dissemination of evidence. Prereq: 8783.			
8890	Doctor of Nursing Practice Professional Seminar	G	1
Development of scholarly writing and peer review skills in scholarly nursing practice. Prereq: Enrollment in DNP program, or permission of instructor.			

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<b>8896</b>	<b>Practice Inquiry I</b>	<b>G</b>	<b>2 - 3</b>
Application of evidence-based practice (EBP) principles and the change process to implement, facilitate, evaluate, and sustain EBP changes to improve healthcare. Prereq: Enrollment in the Doctor of Nursing Practice program, or permission of instructor.			
<b>8897</b>	<b>Practice Inquiry II</b>	<b>G</b>	<b>1 - 3</b>
Examination of the roles and responsibilities of the DNP in use of EBP methods and dissemination of evidence to influence clinical practice change, building upon knowledge and skills in Practice Inquiry I (NursPrct 8896). Prereq: 8896, and enrollment in the DNP program, or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>8898</b>	<b>DNP Clinical Immersion</b>	<b>G</b>	<b>5</b>
Integration and synthesis of knowledge and practice experiences designed to achieve essential and specialty components of the DNP role. Prereq: Successful completion of DNP Professional Examination. Repeatable to a maximum of 10 cr hrs.			
<b>8898.01</b>	<b>DNP Clinical Immersion I</b>	<b>G</b>	<b>5</b>
Integration and synthesis of knowledge and practice experiences designed to help students achieve essential and specialty components of the DNP role. Prereq: 8402, 8403, 8404, 8480, 8490, 8500, 8510, 8600, 8610, 8781, 8782, 8896, and 8897.			
<b>8898.02</b>	<b>DNP Clinical Immersion II</b>	<b>G</b>	<b>1 - 5</b>
Integration and synthesis of knowledge and practice experiences designed to help students achieve essential and specialty components of the DNP role. Prereq: 8898.01, and completion of the DNP Professional Examination. Repeatable to a maximum of 5 cr hrs or 4 completions.			
<b>8998</b>	<b>DNP Final Document Project</b>	<b>G</b>	<b>1</b>
Students complete a scholarly clinical project based on their individualized goals and interests. Prereq: Enrollment in the Doctor of Nursing Practice Program and completion of the DNP Professional Doctoral Examination. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>8998.01</b>	<b>DNP Final Document Project I</b>	<b>G</b>	<b>1</b>
Students complete a scholarly clinical project based on their individualized goals and interests. Prereq: 8402, 8403, 8404, 8480, 8490, 8500, 8510, 8600, 8610, 8781, 8782, 8896, and 8897. This course is graded S/U.			
<b>8998.02</b>	<b>DNP Final Project Document II</b>	<b>G</b>	<b>1</b>
Students complete a scholarly clinical project based on their individualized goals and interests. Prereq: 8998.01, and completion of the DNP Professional Examination. This course is graded S/U.			

### Occupational Therapy

<b>6110</b>	<b>Occupational Therapy Foundations &amp; Theory</b>	<b>G</b>	<b>2</b>
Students gain understanding of the scope and domain of the profession, learn basic models of occupational performance and demonstrate professional behavior. The course focuses on developing the student's understanding of OT, professional practice frameworks and professional behaviors. Prereq: Enrollment in the Doctorate of Occupational Therapy program.			
<b>6120</b>	<b>Occupation in Life and Community</b>	<b>G</b>	<b>2</b>
Students will gain an understanding of humans as being occupationally oriented as described in Occupational Science. Everyday occupations and examples of adapted occupations when a person has disability are discussed. Students will also gain a beginning understanding of the effects of disease and disability on human occupation. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			
<b>6130</b>	<b>Occupational Therapy Therapeutic Use of Self and Groups Lecture</b>	<b>G</b>	<b>2</b>
Students learn the scope of domain of the Occupational Therapy profession, therapeutic interaction, professional behaviors, and group process. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>6131</b>	<b>Therapeutic Use of Self and Groups Lab</b>	<b>G</b>	<b>1</b>
Students will engage in self- and peer-assessment, high level discussion, hands on practice of therapeutic communication, administration of occupational assessments, occupational profile training, and standardized patient lab. Additionally, students will plan, design, and implement group activities at community sites. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>6140</b>	<b>Task Analysis &amp; Foundational Skills</b>	<b>G</b>	<b>3</b>
This course is designed to provide the student with the knowledge and skills required in the analysis of occupation and occupational tasks. The course also provides a foundation for core clinical skills in the healthcare environment. Prereq: Grad standing in OccTher (OTD).			
<b>6150</b>	<b>Neuroscience for Occupational Therapy</b>	<b>G</b>	<b>2</b>
Covers the fundamentals of neuroanatomy and neurophysiology to enable students to interpret, evaluate and treat clients with neurological impairments. Students demonstrate competence in the integration of neuroscience principles. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			

<b>6160</b>	<b>Assessing Occupation: Fundamentals of Biomechanics</b>	<b>G</b>	<b>1</b>
This course will provide students with an introduction to the standard assessments of function of the human skeletal and neuro-muscular systems. Students will learn how to select appropriate assessments and plan exercise interventions to promote occupational functioning and will develop the technical skill of evaluation for those conditions in persons with impairment or disability. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>6189</b>	<b>Level I Fieldwork in Mental Health</b>	<b>G</b>	<b>1</b>
Students spend 40 hours of time at mental health sites throughout the continuum of care. This course utilizes observation skills, assessment, and development of OT intervention plans for people with emotional, cognitive, and/or behavioral issues. Prereq: Enrollment in the Doctorate of Occupational Therapy program. This course is graded S/U.			
<b>6210</b>	<b>Occupational Therapy Intervention and Assessment for Physical Rehabilitation</b>	<b>G</b>	<b>3</b>
Students learn methods of occupational therapy assessment of and intervention to improve neuromusculoskeletal and sensory function in persons with impairment or disability. This class is for enrolled Occupational Therapy Students and is taught in a developmental course sequence as each course builds on content knowledge learned in previous occupational therapy courses. Prereq: Enrollment in the Doctorate in Occupational Therapy program, or permission of instructor.			
<b>6211</b>	<b>Occupational Therapy Intervention and Assessment for Physical Rehabilitation Lab</b>	<b>G</b>	<b>2</b>
Students learn methods of occupational therapy assessment of and intervention to improve impairments in persons with physical disabilities. Application of these skills is completed in an interactive experiential environment individually, in groups, and in practical lab examinations. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>6220</b>	<b>Mental and Cognitive Functions</b>	<b>G</b>	<b>3</b>
This course introduces students to the etiology, epidemiology, signs/symptoms, associated health conditions, prognosis, and medical management of individuals with mental and cognitive impairment. This class is for enrolled Occupational Therapy Students and is taught in a developmental course sequence as each course builds on content knowledge learned in previous occupational therapy courses. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			
<b>6221</b>	<b>Mental and Cognitive Functions Lab</b>	<b>G</b>	<b>1</b>
This course focuses on the evaluation and treatment of individuals with mental and cognitive impairment. This class is for enrolled Occupational Therapy Students and is taught in a developmental course sequence as each course builds on content knowledge learned in previous occupational therapy courses. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>6230</b>	<b>Orthopedics in Occupational Therapy</b>	<b>G</b>	<b>4</b>
Students will use their knowledge of anatomy, kinesiology, client factors, and medical conditions to better analyze the occupations and performance skills of adults with orthopedic and musculoskeletal conditions. Prereq: Enrollment in the Doctorate of Occupational Therapy program.			
<b>6251</b>	<b>Advanced Topics; Physical Agent Modalities</b>	<b>G</b>	<b>1</b>
Students learn to apply physical agent modalities in occupational therapy practice. This class is for enrolled Occupational Therapy Students and is taught in a developmental course sequence as each course builds on content knowledge learned in previous occupational therapy courses. Prereq: Enrollment in the Doctorate in Occupational Therapy Program, or permission of instructor.			
<b>6289</b>	<b>Level One Physical Function Fieldwork</b>	<b>G</b>	<b>1</b>
In this course, students will gain an understanding of practice in a physical function setting. This course will utilize observation skills, assessment, and development of occupational therapy intervention plans for people with physical impairments. Prereq: Enrollment in the Doctorate in Occupational Therapy program. This course is graded S/U.			
<b>6389</b>	<b>Level One Pediatric Fieldwork</b>	<b>G</b>	<b>1</b>
In this course, students will gain an understanding of school system practice. Students will learn specific skills in observing and evaluating students who receive occupational therapy services. Students will participate in planning intervention activities within the school setting. Prereq: Enrollment in the Doctorate in Occupational Therapy program. This course is graded S/U.			
<b>6510S</b>	<b>Service Learning in OT</b>	<b>G</b>	<b>1</b>
This course exposes students to the emerging practice areas of community health services, inter-generational interventions, and inter-professional relationships in a service learning setting. Prereq: Enrollment in the Doctorate in Occupational Therapy program. This course is graded S/U.			
<b>6730</b>	<b>Research Methods</b>	<b>G</b>	<b>2</b>
Students analyze research reports, develop research questions, identify research methods and designs, collect, analyze and interpret data related to occupational therapy. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			

## Occupational Therapy 357

<b>6740</b>	<b>Health Planning for Individuals and Communities</b>	<b>G</b>	<b>2</b>
The goal of this course is for students to develop skills in using principles of evidence based practice to develop clinical pathways that guide evaluation and intervention for individual and/or diagnostic groups and develop programs through a process of needs assessment, program implementation, and evaluation. Prereq: HthRhSc 7900 and 7910.			
<b>7189</b>	<b>Occupational Therapy Fieldwork II</b>	<b>G</b>	<b>9</b>
Fulltime fieldwork in selected occupational therapy service settings. Prereq: Enrollment in Masters of Occupational Therapy program. Repeatable to a maximum of 18 or hrs. This course is graded S/U.			
<b>7260</b>	<b>Occupational Therapy for Older Adults</b>	<b>G</b>	<b>2</b>
Students will gain an applied understanding of the older adult demographic, diversity, varying roles, and systems theory including a transactional approach to understanding older adults in context. Students will gain knowledge about treatment of older adults and the systems in which care is delivered. Prereq: Enrollment in the Doctorate of Occupational Therapy program. Not open to students with credit for 748.			
<b>7270</b>	<b>Occupational Performance, Environment and Context: Assessment and Intervention</b>	<b>G</b>	<b>3</b>
Students will understand the interaction of conditions, occupations, context, habits, roles, routines and will understand and apply knowledge of occupational therapy assessment and interventions for environmental adaptation, ADL, IADL, work, and social/leisure participation and environment. Prereq: Enrollment in the Doctorate in Occupational Therapy Program. Concur: 7271.			
<b>7271</b>	<b>Occupational Performance, Environment, and Context: Assessment and Intervention in OT LAB</b>	<b>G</b>	<b>1</b>
Students will demonstrate competence in occupational therapy assessment and interventions for environmental adaptation, ADL, IADL, work, and social/leisure participation. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>7280</b>	<b>Advanced Topics in Geriatrics Lecture</b>	<b>G</b>	<b>1</b>
Students learn advanced practice skills in geriatrics, including treatment and rehab of cognitive impairment, cardiopulmonary conditions, mental health, cancer, endocrine & low vision. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>7281</b>	<b>Advanced Topics: Geriatrics Lab</b>	<b>G</b>	<b>1</b>
Students will demonstrate evaluation and treatment planning with common geriatric diseases, conditions and syndromes through standardized patient simulations and occupational profiles. This lab has in-depth ICU and Acute Care experiences including early mobilization with a standardized patient on a vent, interprofessional simulations, and extensive exposure to lines, tubes, and equipment. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>7310</b>	<b>Occupational Therapy for Young Children</b>	<b>G</b>	<b>2</b>
This course will prepare students to work with infants and young children across medical and educational environments. This class is for enrolled Occupational Therapy Students and is taught in a developmental course sequence as each course builds on content knowledge learned in previous occupational therapy courses. Prereq: Enrollment in the Doctorate in Occupational Therapy program, or permission of instructor.			
<b>7311</b>	<b>Occupational Therapy for Young Children Lab</b>	<b>G</b>	<b>1</b>
This lab course will prepare students to work with infants and young children across medical and educational environments. This class is for enrolled Occupational Therapy Students and is taught in a developmental course sequence as each course builds on content knowledge learned in previous occupational therapy courses. Prereq: Enrollment in the Doctorate in Occupational Therapy Program.			
<b>7320</b>	<b>Occupational Therapy for School Age and Adolescents</b>	<b>G</b>	<b>2</b>
This course will prepare students to work with school-aged children and adolescents across different health and educational environments. This includes measuring occupational performance, completing standardized assessment and treatment. Prereq: 7310, and enrollment in the Doctorate in Occupational Therapy program.			
<b>7350</b>	<b>Advanced Pediatric Occupational Therapy</b>	<b>G</b>	<b>2</b>
Students achieve advanced skills in neonatal intensive care practice, mobile computer technologies, group interventions; social skills interventions; parent coaching; cognitive intervention; health and wellness. Prereq: Must be enrolled as an OTD student.			
<b>7389</b>	<b>Clinical Doctoral Experience</b>	<b>G</b>	<b>9</b>
Students spend fourteen weeks in a medical, community, or educational setting applying the skills and knowledge they have gained during their course work and Level II clinical fieldwork experiences, and implementing the objectives, timelines and programmatic initiatives they identified with their site mentor(s) and capstone advisor. Prereq: Two successful completions of 7189, and enrollment in the entry-level doctoral occupational therapy program. This course is graded S/U.			
<b>7411</b>	<b>Assistive Technology</b>	<b>G</b>	<b>2</b>
Students apply principles of assistive technology to children and young adults. Emphasis on technology to promote school function and learning, augmentative communication, cognitive aids; pediatric wheelchairs; power mobility; positioning devices. Prereq: Grad standing in Occupational Therapy.			

<b>7420</b>	<b>Management in Occupational Therapy</b>	<b>G</b>	<b>3</b>
Prepares students to become managers, leaders, and advocates. Emphasizes leadership theories, management skills, human resources issues, strategic planning. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			
<b>7430</b>	<b>Supervision and Consultation</b>	<b>G</b>	<b>2</b>
Prepares students to provide consultation and supervision in OT Practice. Consultation theories, models and processes are discussed. Supervision theories and principles are discussed and applied to field. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			
<b>7440</b>	<b>Fieldwork Preparation I</b>	<b>G</b>	<b>1</b>
Covers the theoretical basis for Occupational Therapy fieldwork education and provides students with practical information to enhance their fieldwork experience. Supervision theories and principles are reviewed and applied to Occupational Therapy fieldwork education. Prereq: Enrollment in the Doctorate in Occupational Therapy program.			
<b>7447</b>	<b>Occupational Therapy Fieldwork Preparation II</b>	<b>G</b>	<b>2</b>
This course occurs concurrently with two Level One courses (6289, 6389) and will focus on application of learning experiences to preparation for Level Two fieldwork. Social, political, and legal systems that affect each setting are considered and applied through practical opportunities.			
<b>7610</b>	<b>Occupational Therapy Practice Specialization</b>	<b>G</b>	<b>1 - 3</b>
Prepares students to practice in a specialty area of occupational therapy. Prereq: Must be MOT Student. Not open to students with credit for 793 or AlliMed 885.01. This course is graded S/U.			
<b>7620</b>	<b>Occupational Therapy Research Specialization</b>	<b>G</b>	<b>1 - 3</b>
Students participate in research projects, including literature review, measurement; data collection, data analysis and interpretation, and writing research reports. Students report their activities and findings in public venues. Prereq: Must be MOT Student. Not open to students with credit for AlliMed 885.01. This course is graded S/U.			
<b>7710</b>	<b>Capstone Preparation</b>	<b>G</b>	<b>1</b>
Students are assigned to advisors who mentor them in their capstone projects. Students complete a review of the literature in a self-identified area of interest. Based on the identification of programmatic or research gaps, they will create their objectives for their capstone, their advisor, and a site for implementation of the experiences. Prereq: 6730, 6740, HthRhSc 7900, and 7910. This course is graded S/U.			
<b>7720</b>	<b>Capstone Proposal</b>	<b>G</b>	<b>2</b>
With individual advisors, the students develop a capstone project proposal. Based on extensive review of the literature, proposals include a rationale, method and evaluation for 1) a new occupational therapy program, 2) an EPB clinical guideline. Prereq: Must be enrolled as an OTD student. This course is graded S/U.			
<b>7730</b>	<b>Capstone Completion</b>	<b>G</b>	<b>2</b>
The students interpret their data and write their findings for the capstone project Students submit the final document and orally defend it. Prereq: Grad standing in OccTher (OTD). This course is graded S/U.			
<b>7770</b>	<b>Advance Topics in Assistive Technology</b>	<b>G</b>	<b>2</b>
Students learn how to develop and implement assistive technology (AT) devices, services, strategies and practices. The course covers computer access/technology, alternative and augmentative communication, electronic cognitive devices, driver's rehabilitation, low vision technologies, wheelchairs, electronic activities of daily living, zero-effort technologies, and emerging technologies. Prereq: HthRhSc 5200 or OccTher 7411 or equiv., and Grad standing; or permission of instructor.			
<b>7780</b>	<b>Advanced Neurorehabilitation Practice</b>	<b>G</b>	<b>2</b>
Teaches the principles, evidence, practice, and documentation of clinical practice in adults with neurologic impairments, as well as analysis of how occupational therapy skills and scope of practice are applied to this population. Prereq: Grad standing in OccTher (OTD).			
<b>7790</b>	<b>Advanced Topics in Orthopedic Occupational Therapy</b>	<b>G</b>	<b>2</b>
Occupational therapy students will apply foundational and advanced knowledge and techniques to real clients and simulated client populations with musculoskeletal disorders. Prereq: Enrollment in the Doctorate of Occupational Therapy program			

### Ohio State Biochemistry Program

<b>7193</b>	<b>Individual Studies - Laboratory Rotation</b>	<b>G</b>	<b>1 - 12</b>
A qualified graduate student may conduct a minor laboratory research investigation in biochemistry under the direction of program faculty members. Prereq: Enrollment in the OSBP. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			

## 358 Ohio State Biochemistry Program

**7600 First-Year Student Orientation** G 1  
Orientation for first-year students in OSBP and partner graduate programs; lectures on topics important for successful graduate experience; training in presenting scientific work; training in research ethics.  
Prereq: Not open to students with credit for 7600 (760), MCDBio 7600, MolGen 7600, Biophys 7600, or Microbio 7600. This course is graded S/U. Cross-listed in MCDBio, MolGen, Biophys, and Microbio.

**7700 Interdisciplinary Student Seminar** G 1  
Interdisciplinary Seminar in Advanced Biochemistry.  
Repeatable to a maximum of 10 cr hrs.

**7700.01 Interdisciplinary Student Seminar** G 1  
Interdisciplinary Seminar in Advanced Biochemistry.  
Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**7890 Colloquium - Advanced Biochemistry Topics** G 1  
Seminars presented by Ohio State faculty and by faculty and professionals from outside the University.  
Prereq: Enrollment in the OSBP. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.

### Optometry

**5600 Eyes on Community Health** U G O 2  
Investigate factors that impact healthcare utilization. Community engagement opportunities include glaucoma screenings and improvisational health coaching for patients dealing with chronic health issues.

**6180 Basic and Ocular Pharmacology** G O 4  
An introduction to the mechanism of action and side effects of pharmacologic agents.  
Prereq: 2nd yr standing in Optom. Not open to students with credit for 680 or 681.

**6190 Introduction to Clinical Diagnostic Reasoning in Optometry** O 1½  
Using a problem-based learning format, optometric cases will be utilized to model and develop diagnostic reasoning skills emphasizing basic science and systemic disease.  
Prereq: 1st yr standing in Optom.

**6200 Introduction to Optometric Business** O 2  
Introduction to the business aspects of the profession of optometry to help students understand and better prepare for their future as an optometrist from a business and financial perspective.

**6220 Billing and Coding** O 2  
This course introduces students to the billing & coding aspects of the profession of optometry. This knowledge is critical to the successful practice of optometry, regardless of career path. This course is designed to help the students understand and better prepare for their future as an optometrist from a billing and coding perspective.  
Prereq: 2nd yr standing in Optom.

**6240 Third-Party Payment Plans** O 1  
Issues related to joining a third-party payment plan; integrating managed care into the optometric office; evaluation of managed care contracts.  
Prereq: 3rd yr standing in Optom.

**6400 Optometric Examination** O 5  
The underlying concepts and interrelationships of optometric tests to permit the development of diagnosis and treatment plans for a specified series of optometric problems.  
Prereq: 2nd yr standing in Optom.

**6410.01 Introduction to Primary Care Testing I** O 2  
Through lecture and direct patient care, students will learn technical skills for parts of the optometric examination. Interpretation of tests will be covered superficially. Professionalism and interpersonal skills will be emphasized.  
Prereq: 1st yr standing in Optom. This course is graded S/U.

**6410.02 Introduction to Primary Care Testing II** O 2  
Through direct patient care experiences, students will learn technical skills for parts of the optometric examination. Interpretation of tests will be covered superficially. Professionalism and interpersonal skills will be emphasized.  
Prereq: 6410.01, and 1st yr standing in Optom. This course is graded S/U.

**6420 Diagnosis and Management of Common Vision Conditions** O 2  
This course focuses on evaluation and treatment for accommodative, vergence, oculomotor, visual perceptual and refractive disorders. Classroom emphasis is on clinical analysis of data, diagnosis, and development of appropriate treatment plans. Laboratory sessions expand into treatment through vision therapy techniques.  
Prereq: 2nd yr standing in Optom.

**6440.01 Introduction to Primary Care Practice** O 1 - 4  
Introduction to clinical experience in examining the visual system and carrying out corrective procedures.  
Prereq: 2nd yr standing in Optom. Repeatable to a maximum of 30 cr hrs.

**6440.02 Ophthalmic Dispensing** O 1 - 6  
Clinical experience in ophthalmic design and dispensing; education and experience in dispensary management.  
Prereq: 2nd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**6450.01 Primary Care Practice** O 1 - 6  
Clinical experience in examining the visual system and carrying out corrective procedures.  
Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**6450.02 Advanced Ophthalmic Dispensing** O 1 - 6  
Ophthalmic Dispensing: Advanced clinical experience in ophthalmic design, dispensing, and dispensary management.  
Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**6450.03 Introduction to Contact Lenses** O 1 - 6  
Clinical experience in specialized phases of optometric practice: contact lenses.  
Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions. This course is graded S/U.

**6450.04 Ocular Disease Practice** O 1 - 6  
Clinical experience in specialized phases of optometric practice: diagnosis and treatment of ocular disease.  
Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**6450.05 Vision Screening** O 1 - 6  
Clinical experience in specialized phases of optometric practice: binocular vision and pediatrics.  
Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**6450.06 Vision Therapy** O 1 - 6  
Clinical experience in orthoptics and vision therapy.  
Repeatable to a maximum of 30 cr hrs or 8 completions.

**6450.07 Community Outreach** O 1 - 12  
Clinical experience in specialized phases of eyecare: community outreach.  
Prereq: 3rd yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**6560 Ophthalmic Optics** O 5  
Optics of single-vision and multifocal lenses; measurement and fitting of spectacles; lens materials, design and manufacturing; aberrations; prism and centration; managing anisometropia; tints and coatings.  
Prereq: 2nd yr standing in Optom.

**6610 Epidemiology, Public Health and Environmental Vision** O 3  
This course will explore epidemiological theories as they related to public health. Community aspects of providing vision care, environmental influences on visual performance, and protection from diseases/hazards to the eye and visual system will also be covered.

**6620 Practice of Optometry** O 1  
Professionalism, clinical decision making, SOAP format, medical records, patient rights, HIPAA, clinical ethics in optometry, diversity and cultural competency.  
Prereq: 1st yr standing in Optom.

**6760 Ocular Care Techniques** O 2  
Introduction to clinical techniques used in the assessment of ocular health and in the diagnosis and management of ocular disease.  
Prereq: 2nd yr standing in Optom.

**6770 Advanced Ocular Care Techniques** O 2  
Investigation of advanced clinical techniques used in the assessment of ocular health and in the diagnosis and management of ocular disease.  
Prereq: 2nd yr standing in Optom.

**7140 Systemic Disease for Optometry** O 3  
Systemic and ocular manifestations of cardiovascular disease, diabetes, hematology, inflammatory disorders, thyroid disorders, neurological disorders, immunology, infectious disorders, macular degeneration management, laboratory blood work.  
Prereq: 3rd yr standing in Optom.

**7160 Injections, Lasers and Advanced Ocular Techniques** O 2  
Practical experience in injections, ophthalmic lasers and advanced ocular techniques.  
Prereq: 3rd yr standing in Optom.

**7190 Intermediate Clinical Diagnostic Reasoning in Optometry** O 1½  
Using a problem-based learning format, optometric cases will be utilized to further develop clinical diagnostic and management skills requiring basic and clinical science integration.  
Prereq: 3rd yr standing in Optom.

**7210 Optometric Business Management I** O 3  
A deeper dive into the business aspects of the profession of optometry covering practice metrics, human resources, optical management, organizational structure, marketing, business relationships, business plans, financial accounting, entrepreneurship, your professional team, and more.



**7240 Optometric Business Management II O 2**

This course dives deeper into the business aspects of the profession of optometry. This knowledge is critical to the successful practice of optometry, regardless of career path. This course is designed to help the students understand and better prepare for their future as an optometrist from a business and financial perspective.  
Prereq: 3rd yr standing in Optom.

**7420 Vision of Children O 2**

Examination of pediatric patients, including special examination procedures, development of refractive error, prescribing, ocular health, and child abuse.  
Prereq: 3rd yr standing in Optom.

**7440 Clinical Binocular Vision O 5**

Classification, epidemiology, diagnosis, and management of nonstrabismic and strabismic binocular vision disorders, accommodative anomalies, amblyopia, oculomotor deficiencies, and visual perceptual lags.  
Prereq: 3rd yr standing in Optom.

**7450.02 Ophthalmic Dispensing O 1 - 10**

Advanced clinical experience in ophthalmic design, dispensing, and dispensary management.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.03 Contact Lenses and Primary Care O 1 - 10**

Clinical experience in specialized phases of optometric practice: contact lenses and primary care.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.04 Student Health Care O 1 - 12**

Clinical experience in specialized phases of eyecare: student health care.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.05 Binocular Vision and Pediatrics O 1 - 10**

Clinical experience in specialized phases of optometric practice: binocular vision and pediatrics.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.06 Vision Rehabilitation O 1 - 10**

Clinical experience in specialized phases of optometric practice: vision rehabilitation.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.11 Ocular Disease Externship O 1 - 15**

Clinical experience in specialized phases of optometric practice: ocular disease.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.12 Practice-based Care O 1 - 12**

Clinical experience in specialized phases of eyecare: practice-based care.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7450.13 Advanced Care Externship O 1 - 15**

Clinical experience in specialized phases of optometric practice: advanced clinical care.  
Prereq: 4th yr standing in Optom. Repeatable to a maximum of 30 cr hrs or 8 completions.

**7460 Low Vision Rehabilitation and Gerontology O 5**

Assessment and management of mild to moderate visual impairment, especially related to reading and driving, with special emphasis on the needs of older adults.  
Prereq: 3rd yr standing in Optom.

**7500 Contact Lenses O 2**

Optics, design, materials, and measurement of contact lenses, theory, fitting and prescribing of sphericals and torics, post-fitting care, contact lens solutions.  
Prereq: 3rd yr standing in Optom.

**7510 Contact Lens Lab O 2**

Measurement, verification, and fitting of rigid gas permeable and soft spherical contact lens designs.  
Prereq: VisSci 6500 (501 and 503) or 6520 (511), and 3rd yr standing in Optometry; or permission of instructor. Concur: 7500.

**7520 Advanced Contact Lenses O 3**

Theory, fitting, and prescribing of specialty contact lens designs including but not limited to torics, multifocals, corneal reshaping and fitting the diseased or irregular cornea.  
Prereq: 3rd yr standing in Optom.

**7530 Advanced Contact Lens Lab O 1**

Fitting of specialty contact lens designs, such as toric, multifocal, corneal reshaping, and scleral designs.  
Prereq: Optom 7500 (Optomtry 433 and 653), and 3rd yr standing in Optometry program; or permission of instructor. Concur: 7520.

**7710 Anterior Segment Ocular Disease O 4**

Abnormalities and diseases of anterior segment of the eye with emphasis on identification, diagnosis and general management.  
Prereq: 2nd yr standing in Optom.

**7720 Posterior Segment Ocular Disease O 3**

Abnormalities of the posterior segment with emphasis on vitreoretinal disease, vascular disease, and macular disease.  
Prereq: 2nd yr standing in Optom.

**7730 Ocular Neurology O 3**

Neurology and neuro-pathology of the visual system and basics of visual field testing and interpretation.  
Prereq: 3rd yr standing in Optom.

**7740 Management of Glaucoma O 2**

Glaucoma diagnosis and management including epidemiology, pathophysiology, differential diagnosis, risk assessment, testing strategy and interpretation, medical and surgical management.  
Prereq: 3rd yr standing in Optom.

**7770 Clinical Ocular Pharmacology O 4**

Application of pharmacology principles in the clinical setting with emphasis on differential diagnosis and matching drug selection and dosage determination with disease severity.  
Prereq: 3rd yr standing in Optom.

**7790 Surgery and Comanagement of Ocular Disease O 2**

Advanced management, pre and post operative management and surgical procedures for ocular disease.  
Prereq: 3rd yr standing in Optom.

**7800 Special Topics in Optometry O ½ - 8**

Elective clinical rotations in the professional optometric curriculum.  
Prereq: Enrollment in Optom, and permission of instructor or department. Repeatable to a maximum of 40 cr hrs or 20 completions.

**Otolaryngology****8803 Observations in Clinical Voice Pathology G 2**

Med 8803 is an observation course for graduate students in the Singing Health Specialization (SHS) curriculum. Provides students with an opportunity to observe the clinical management of voice disorders including the assessment, treatment.  
Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**8804 Observations in Surgical Laryngology G 2**

Observation course for graduate students in the Singing Health Specialization (SHS) curriculum. Students should have completed MED 803 prior to enrollment in this course. This course provides observation experience in a voice disorders clinic with licensed speech language pathologists and is required for the singing health specialization.  
Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**8809 Issues in Laryngology for the Vocal Health Professional G 2**

Advanced anatomy and physiology of the vocal mechanism. Offered for graduate students in the Singing Health Specialization (SHS) curriculum.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**Pathology****3900 Basic Pathology and Disease Mechanisms U 3**

Introductory course covering basic pathology concepts with an emphasis on underlying mechanisms of disease. Applications to scientific research and clinical scenarios will be emphasized.  
Prereq: Biology 1113 or 1113H, and 1114 or 1114H.

**4000.10 Undergraduate Research in Molecular Pathology U 2 - 3**

Students will be doing lab research under Dr. Ramesh Ganju to analyze mechanisms that regulate various diseases. Independent Study Course for any student wishing to complete their Senior Thesis.  
Prereq: Permission of instructor. This course is graded S/U.

**4991 Application of Histological Theory and Techniques I U 12**

Students in this histotechnology lab will learn gross and microtomy examination of tissue specimens in both a clinical and a research lab environment. These skills will be acquired through repeated practice to perfect each new skill.  
Prereq: Admission to Histotechnology Certificate program; BS or BA (with minimum of 30 semester hours of a combination of biology and chemistry).

**4992 Application of Histological Theory and Techniques II U 12**

Students in this histotechnology lab will perform special stains, understand basic electron microscopy, immunohistochemistry, and clinical laboratory compliance. These skills will be acquired through repeated practice to perfect each new skill.  
Prereq: 4991, and admission to Histotechnology program, and BS or BA degree (with minimum of 30 semester hours of a combination of Biology and Chem).

**4998 Undergraduate Research Independent Study Course U 1 - 3**

Students will perform laboratory research under the supervision of a faculty member. Course can be used to satisfy requirements for an undergraduate thesis.  
Prereq: Permission of instructor. This course is graded S/U.

## 360 Pathology

<b>6640</b>	<b>Fundamentals of Oncology</b>	<b>G</b>	<b>4</b>
Oriented towards graduate students in cancer-related programs and consists of a series of lectures covering a variety of aspects of experimental oncology. Prereq: Permission of instructor. Cross-listed in VetBios.			
<b>7194</b>	<b>Group Studies in Pathology</b>	<b>G</b>	<b>1 - 4</b>
Group studies of contemporary topics in mechanisms of disease. Recommended strong background in biological sciences. Prereq: Permission of instructor. Not open to students with credit for 794.			
<b>7550</b>	<b>Introduction to Autopsy</b>	<b>G</b>	<b>1</b>
Students receive an overview of medical (non forensic) autopsy performance and its role in clinical medicine through hands-on exposure to normal and diseased tissues and organs. Recommended prereq: Basic knowledge of anatomy and pathophysiology. This course is graded S/U.			
<b>7793.01</b>	<b>Pathologic Anatomy</b>	<b>G M</b>	<b>3 - 9</b>
Students work with an attending pathologist, pathology resident and deinner in prosecuting cases while they learn the technical operations of the autopsy service. Prereq: Grad standing, or Med III and IV standing. Concur: An additional 3 hour professional course (when registration is for 3 professional credit hours). Repeatable to a maximum of 18 cr hrs or 2 completions. This course is graded S/U.			
<b>7847</b>	<b>Cellular Mechanisms and Pathogenesis of Inflammation</b>	<b>G</b>	<b>2</b>
Inflammatory processes in the human host due to interaction with viruses, bacteria, parasites, foreign antigens, or physical trauma and new immunological therapeutic strategies being developed. Prereq: MVIImg 701 or Microbiol 701, or permission of instructor. Not open to students with credit for MVIImg 847.			
<b>7999</b>	<b>Thesis Research in Pathology</b>	<b>G</b>	<b>2 - 10</b>
Research in contemporary topic in mechanisms of disease leading to a Master's thesis. Prereq: Enrollment in Master of Science program in Pathology. Repeatable to a maximum of 30 cr hrs or 10 completions. This course is graded S/U.			
<b>8850</b>	<b>Seminars in Pathology</b>	<b>G</b>	<b>1</b>
Faculty seminars in immunopathology. Repeatable to a maximum of 14 cr hrs. This course is graded S/U.			
<b>8999</b>	<b>Research in Pathology - Independent Study</b>	<b>G</b>	<b>1 - 12</b>
Students will perform laboratory research under the supervision of a faculty member. Course can be used to satisfy requirements for a doctoral dissertation. Prereq: Permission of instructor. This course is graded S/U.			

### Pediatrics

<b>4998</b>	<b>Undergraduate Research in Pediatrics</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate Research Experience in Pediatrics. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			
<b>8999</b>	<b>Doctoral Thesis Research in Pediatrics</b>	<b>G</b>	<b>1 - 13</b>
Doctoral Thesis Research in Pediatrics. Prereq: Permission of instructor. Repeatable to a maximum of 12 completions. This course is graded S/U. Admis Cond course.			

### Persian

<b>1101</b>	<b>Elementary Persian I</b>	<b>U</b>	<b>4</b>
Introduction to Persian; development of listening, reading, speaking, and writing skills. Closed to native speakers of this language. This course is available for EM credit. GE for lang course.			
<b>1102</b>	<b>Elementary Persian II</b>	<b>U</b>	<b>4</b>
Further development of listening, writing, speaking, and reading skills; reading of simplified Persian texts. Closed to native speakers of this language. Prereq: 1101. This course is available for EM credit. GE for lang course.			
<b>1103</b>	<b>Intermediate Persian I</b>	<b>U</b>	<b>4</b>
Further development of listening, writing, speaking, and reading skills; reading of simplified Persian texts. Closed to native speakers of this language. Prereq: 1102. This course is available for EM credit. GE for lang course.			
<b>2104</b>	<b>Intermediate Persian II</b>	<b>U</b>	<b>4</b>
Extensive reading from literary texts, with practice in conversation and composition. Prereq: 1103.			
<b>2105</b>	<b>Intermediate Persian III</b>	<b>U</b>	<b>4</b>
Continued reading from literary texts, with further practice in conversation, composition, and translation. Prereq: 2104.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
Individual Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			

<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>2241</b>	<b>Persian Culture</b>	<b>U</b>	<b>3</b>
A survey of Persian Culture through the reading of Persian literature in translation, viewing of Persian films, and listening to Persian music. Prereq: Not open to students with credit for 241. GE cultures and ideas and diversity global studies course.			
<b>2701</b>	<b>Persian Literature in Translation</b>	<b>U</b>	<b>3</b>
A study of Persian literature in translation and the history of its discourses, genres, and styles. Prereq: English 1110 (110). Not open to students with credit for 371. GE lit and diversity global studies course.			
<b>3101</b>	<b>Advanced Persian: Reading and Composition</b>	<b>U</b>	<b>4</b>
Extensive reading of classical and modern Persian literary texts, with practice in grammar and composition at an advanced level. Prereq: 2105.			
<b>3350</b>	<b>Iranian Society Today: Internal Conflicts and Social Movements</b>	<b>U</b>	<b>3</b>
This multi-disciplinary course is a journey through political, social, and intellectual history of Iran. The course will discuss intellectual interpretations of post-1979-revolution Iranian society, various new nonviolent social movements in recent two decades, and the role of globalization and media politics in contemporary Iran. GE soc sci indivs and groups and diversity global studies course.			
<b>3704</b>	<b>Persian Epic in Translation</b>	<b>U</b>	<b>3</b>
An introduction, in English, to the Shahnameh of AbolQasem Ferdowsi. Prereq: English 1110. Not open to students with credit for 2704. GE lit course.			
<b>4999H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 3</b>
A program of research for individual students that includes individual conferences and culminates in an honors thesis or oral defense. Prereq: Honors and Sr standing, and GPA 3.5 or above in field of distinction, and approved candidacy for graduation with distinction, and permission of instructor. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 10</b>
Individual studies. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 10</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions.			
<b>5601</b>	<b>Persian Prose</b>	<b>U G</b>	<b>3</b>
Selected readings reflecting the major genres of classical Persian prose, plus a modern novel. Prereq: 3101, or permission of instructor. Not open to students with credit for 651.			
<b>8891</b>	<b>Seminar in Iranian Studies</b>	<b>G</b>	<b>3 - 4</b>
The Seminar in Iranian Studies consists of intensive investigation of a selected topic or problem in Iranian linguistics, philology, literature, religion, or culture. Prereq: Grad standing. Repeatable to a maximum of 32 cr hrs or 8 completions.			

### Pharmacy

<b>1100</b>	<b>Pharmaceutical Sciences Survey</b>	<b>U</b>	<b>1</b>
Introduction to the University, strategies for student success, academic programs, opportunities in the pharmaceutical sciences and practice, and contemporary issues. Prereq: Enrollment restricted to students in the BSPS program, or permission of instructor.			
<b>2010</b>	<b>Pharmacology: How Drugs Work</b>	<b>U</b>	<b>3</b>
This course presents an overview of basic principles underlying drug action.			
<b>2100</b>	<b>Career Development in Pharmaceutical Sciences I</b>	<b>U</b>	<b>½</b>
This class introduces students to diverse careers in the field of pharmaceutical & health sciences. Students will be grouped based on their career interests, & will work with their instructor/peers to gain knowledge on various career paths. Students will engage with guest speakers & will come away with a sense of their options and a critical understanding of career and professional development. Prereq: Enrollment in the BSPS program, or permission of instructor.			
<b>2101</b>	<b>Career Development in Pharmaceutical Sciences II</b>	<b>U</b>	<b>½</b>
In this professional development course, students identify a plan for pursuing their career goals and acquire practical skills to assist with job searching, networking, personal branding, and applying to graduate/professional programs. Prereq: 2100, enrollment in the Bachelor of Science in Pharmaceutical Sciences program, and Jr standing; or permission of instructor.			

<b>2367.01</b>	<b>Drug Use in American Culture</b>	<b>U</b>	<b>3</b>
This course investigates a given drug by assessing its historical use, clinical properties and risks, its role in American culture, and other issues surrounding its use/abuse in the United States. Students will analyze various sources of information and effectively communicate key messages using a variety of platforms. Prereq: English 1110 or equivalent, and Soph standing. Not open to students with credit for 2367.02. GE writing and comm course: level 2.			
<b>2367.02</b>	<b>Drug Use in American Culture</b>	<b>U</b>	<b>3</b>
This course investigates a given drug by assessing its historical use, clinical properties and risks, its role in American culture, and other issues surrounding its use/abuse in the United States. Students will analyze various sources of information and effectively communicate key messages using a variety of platforms. Online delivery only. Prereq: English 1110 or equivalent, and Soph standing. Not open to students with credit for 2367.01. GE writing and comm course: level 2.			
<b>2400.01</b>	<b>Addicting Drugs: Effects, Introductory Neurobiology, and Regulation</b>	<b>U</b>	<b>3</b>
Overview of effects, regulation, and mechanism of action of addicting drugs, with an introduction to function of the nervous system and how this function is altered by drugs. Prereq: Not open to students with credit for 2000. Not open to professional students in the College of Pharmacy.			
<b>2410</b>	<b>Drugstore Science</b>	<b>U</b>	<b>3</b>
This course introduces the science behind common drugstore products, including over-the-counter (OTC) medications and drug-cosmetics, including how these products work, potential non-drug alternatives, and various drug-related issues involving their use. Note: Content of this course is not intended to be considered as professional medical advice or to replace advice from a healthcare provider.			
<b>2500</b>	<b>Drug Discovery, Development and Delivery</b>	<b>U</b>	<b>3</b>
Provides a comprehensive overview of the drug discovery, development, and delivery process within the U.S. healthcare system, exploring the roles of vested stakeholders (e.g., patients, pharmaceutical industry, providers, insurers, society, etc.) during a drug's "bench to bedside" development including its post-development place in therapy.			
<b>2510</b>	<b>Introduction to Pharmacy</b>	<b>U</b>	<b>2</b>
A survey of the profession of pharmacy, dealing with its history, educational requirements, organization, regulation, and current developments. Prereq: Not open to students with credit for 2511H, 4510, 4511H.			
<b>2511H</b>	<b>Introduction to Pharmacy</b>	<b>U</b>	<b>3</b>
A survey of the profession of pharmacy including its history, scope of practice, educational pathways, ethical foundations, regulation, contemporary issues, career opportunities, and prospects for the future; as well as topics relating to medication use and drug discovery/development. Prereq: Enrollment in the BSPS program and Honors standing, or permission of instructor. Not open to students with credit for 2510, 4510, or 4511H.			
<b>2520</b>	<b>Patient Perspectives</b>	<b>U</b>	<b>2</b>
This course will provide students with the unique opportunity to learn directly from patient speakers (and caregivers if available) about the impact disease states and therapy have on them. In addition to listening to these first-hand accounts, students will be able to thoughtfully engage and meaningfully reflect each week to develop their understanding and empathy for the patient experience.			
<b>2530</b>	<b>Introduction to Pharmaceutical Science Research</b>	<b>U</b>	<b>2</b>
This elective is designed to differentiate investigation-focused pharmaceutical research compared to skills-focused laboratory course work and introduce students to exciting topics of active research in the field in a highly approachable way.			
<b>2530E</b>	<b>Introduction to Pharmaceutical Science Research</b>	<b>U</b>	<b>2</b>
This elective is designed to differentiate investigation-focused pharmaceutical research compared to skills-focused laboratory course work and introduce students to exciting topics of active research in the field in a highly approachable way. Prereq: Honors standing.			
<b>2934</b>	<b>It's Not Magic, It's Pharmaceutical Sciences</b>	<b>U</b>	<b>3</b>
This course will serve as an introduction to pharmaceutical and associated healthcare sciences. Topics covered include the history of medicine, drug discovery and development, natural products, and pertinent public health crises. Topics will be presented through connections made to fantasy narratives, such as Harry Potter. Prereq: Not open to students enrolled in the BSPS program.			
<b>3100</b>	<b>Human Physiology and Disease</b>	<b>U</b>	<b>4</b>
This course examines principles of human physiology and provides an overview of the most common pathophysiological diseases. Prereq: Biology 1113 or 1113H or 1114 or 1114H, and Chem 1210 or 1250 or 1610 or 1910H, and enrollment in the BSPS program; or permission of instructor.			
<b>3191</b>	<b>Experiential Learning in Pharmaceutical Sciences</b>	<b>U</b>	<b>1</b>
Students will begin to develop and solidify their career goals and improve their understanding of career and professional development in the pharmaceutical sciences through hands-on experience in an internship, course lectures and assignments. Students will work closely with supervisors and instructors to explore skills and receive constructive feedback. Prereq: Permission of instructor, and students must already have secured an internship/experiential opportunity. This course is graded S/U.			

<b>3200</b>	<b>Biochemistry for the Pharmaceutical Sciences</b>	<b>U</b>	<b>5</b>
Fundamentals of biological chemistry for the study of the pharmaceutical sciences, including molecular basis of structure, metabolism, genetic replication, transcription, and translation in humans. Ties to drug processes will be highlighted. Prereq: Chem 2520 or 2920H; and enrollment in the BSPS program, or permission of instructor.			
<b>3400</b>	<b>Therapeutic Frontiers</b>	<b>U</b>	<b>2</b>
Investigation of newly emerging (and at times) controversial strategies for treating disease, including biologics, cell replacement therapy, and vaccines among others. This course also explores the science behind important therapeutic factors such as the placebo effect, the microbiome, and pharmacogenomics. Prereq: Not open to students with credit for 4410.			
<b>3410</b>	<b>Science Communication &amp; Engagement</b>	<b>U</b>	<b>1</b>
Within the Generation Rx Laboratory at the Center of Science and Industry (COSI), students will practice science communication as they create and lead live, hands-on experiments teaching basic drug science. Prereq: Jr or Sr standing, enrollment in the BSPS program, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>3420</b>	<b>Generation Rx: America's Drug-Taking Culture</b>	<b>U</b>	<b>3</b>
This course analyzes America's drug-taking culture by examining its past, present, and future. Students will identify factors that fuel it, discuss its influence on a patient's medication experience, and evaluate its role in a current public health crisis. The course will conclude with discussing ideas that promote a culture of health. GE cultures and ideas course.			
<b>3500</b>	<b>Pharmacoethics: Dilemmas and Decision-Making</b>	<b>U</b>	<b>2</b>
Develops core competencies in ethical issues in healthcare settings amidst a biologically, socially, culturally diverse patient population. Discusses the pharmaceutical industry's ethical responsibilities & professional conduct, including clinical drug trials & studies, research, marketing & promotion. Discusses basic principles of business ethics in other healthcare industries.			
<b>3520</b>	<b>Principles of Therapeutics</b>	<b>U</b>	<b>2</b>
Designed to provide knowledge about medication therapies and treatment guidelines for common illnesses affecting patients. Prereq: Not open to students with credit for Phr 4520. This course is graded S/U.			
<b>3530</b>	<b>Drugs, Human Enhancement, and the Mastery of Nature</b>	<b>U</b>	<b>3</b>
How should we navigate questions of identity in the world of cognitive and mood enhancing drugs? Where do we draw the line on 'smart drugs' for intellectual endeavors or the use of performance enhancing drugs in athletic pursuits? More broadly, we will debate whether and how as a society we might enact particular restraints on our pursuit of human enhancements. GE cultures and ideas course.			
<b>3540</b>	<b>Health Citizenship: Advocacy and Change-Making</b>	<b>U</b>	<b>3</b>
The goal of the Health Citizenship: Advocacy and Change-Making elective is to build a foundation of knowledge of historical and current state and federal issues that impact healthcare and cultivate skills to become effective changemakers to improve the healthcare system.			
<b>3708</b>	<b>Vaccines: A Global History</b>	<b>U</b>	<b>3</b>
This course examines the history and biology of vaccines. We explore the discovery and development of vaccines, along with the political and cultural controversies that have surrounded them for centuries. Team-taught course with faculty member in History. Prereq: Not open to students with credit for History 3708. GE historical study course. Cross-listed in History.			
<b>4000</b>	<b>Molecules to Medicines I: An Integrated Approach to the Pharmaceutical Sciences</b>	<b>U</b>	<b>5</b>
First course in a two-course series. Principles governing the design, synthesis, delivery, action and use of drugs in disease treatment. Model disease pathophysiology and treatment will be investigated, discussing how biological differences can be targeted for therapeutic gain. Prereq: 3200, 4100, Biochem 4511, or 5614 (prereq or concur). Prereq or concur: Phr 3100, EEOB 2520, or Physio 3200.			
<b>4010</b>	<b>Molecules to Medicines II: An Integrated Approach to the Pharmaceutical Sciences</b>	<b>U</b>	<b>5</b>
Second course in a two-course series. Principles governing the design, synthesis, delivery, action and use of drugs in disease treatment. Model disease pathophysiology and treatment will be investigated, discussing how biological differences can be targeted for therapeutic gain. Prereq: 4000.			
<b>4191</b>	<b>BSPS Internship for Curricular Practical Change</b>	<b>U</b>	<b>0</b>
Provides professional experience which will prepare students for professional expectations upon graduation. This course accompanies the active pursuit of an internship experience which satisfies the requirements for curricular practical training. Prereq: Enrollment in the BSPS program, submitted CPT application, letter of offer from CPT site, and permission of instructor. This course is graded S/U.			
<b>4193</b>	<b>Individual Studies in Pharmaceutical Sciences</b>	<b>U</b>	<b>½ - 12</b>
Laboratory and library work designed to give the qualified student an opportunity to complete an original investigation or pursue an interest in a special problem. Prereq: CPHR 2.5 or above, and Soph standing, and enrollment in the BSPS program, and permission of instructor. Not open to students with credit for Pharmacy 493. Repeatable to a maximum of 30 cr hrs or 12 completions. This course is progress graded (S/U).			

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<b>4194</b>	<b>Group Studies in Pharmaceutical Sciences</b>	<b>U</b>	<b>1 - 12</b>
Group studies topics in various fields of Pharmacy. Prereq: Enrollment in BSPS program, or permission of instructor. Not open to students with credit for Pharmacy 494.01. Repeatable to a maximum of 12 or hrs or 12 completions.			
<b>4210H</b>	<b>Problem Solving in Biomedical Chemistry</b>	<b>U</b>	<b>2</b>
A course designed to use problem-based learning to promote understanding of biomedical concepts. Case studies will be assigned allowing students to apply biochemical principles and communicate with their colleagues in the course. Prereq: 3200 or 4100, and enrollment in BSPS program.			
<b>4330</b>	<b>Basic Pharmacokinetics</b>	<b>U</b>	<b>2</b>
An elementary course designed to introduce the student to the topic of pharmacokinetics. The application of biopharmaceutics and pharmacokinetic principles as they relate to drug absorption, distribution and elimination will be discussed. Prereq: Math 1141 or 1151, or permission of instructor.			
<b>4420</b>	<b>Molecular Pharmacology-From DNA to Biopharmaceutical Products</b>	<b>U</b>	<b>2</b>
Introduces students to pharmacological research and drug discovery through readings, discussions, and presentations. Prereq: 3200 or 4100; or Chem 2520 or 2920H, and Biochem 4511 or 5613. Not open to students with credit for Pharmacy 471.			
<b>4430</b>	<b>GPCR Pharmacology</b>	<b>U</b>	<b>1</b>
Focuses on the pharmacology of G-protein-coupled receptors (GPCRs). GPCRs constitute a large and diverse family of proteins whose importance is underscored by the fact that at least one third of the currently marketed drugs target these proteins. Prereq: Enrollment in the BSPS program. Not open to students with credit for 472.			
<b>4440</b>	<b>Pharmacology of Neurologic and Psychiatric Disorders</b>	<b>U</b>	<b>3</b>
This course will serve as an introduction to principles of pharmacological therapy of neurologic and psychiatric diseases. Prereq: 3200 or 4100, or Biochem 4511 or 5613, or Neurosc 3000, or permission of instructor.			
<b>4470</b>	<b>Contemporary Pharmacology</b>	<b>U</b>	<b>1</b>
Exploration of current research topics in pharmacology through discussions of recently published pharmacology papers. Enrollment with permission of Instructor. Prereq: 4000, 4400, or 4460; and permission of instructor. Repeatable to a maximum of 3 ch hrs.			
<b>4600</b>	<b>Pharmaceutical Sciences Laboratory</b>	<b>U</b>	<b>2</b>
Lab exercises to teach the theory and practice of basic techniques in pharmaceuticals, medicinal chemistry and pharmacology: including spectroscopy, hydrolysis, drug synthesis, pKa determination, IC50 determination, enzyme kinetics, and drug action. Prereq: Chem 2540, and enrollment in the BSPS program or Pharmaceutical Sciences minor; or permission of instructor. Prereq or concur: PHR 3200 or 4100, or Biochem 4511 or 5613.			
<b>4610</b>	<b>Experimental Techniques in Drug Discovery</b>	<b>U</b>	<b>3</b>
Examination of the laboratory instrumentation and methods used in the drug discovery process. Prereq: 3200, 4000, and 4600; or permission of instructor.			
<b>4997</b>	<b>BSPS Honors Project</b>	<b>U</b>	<b>1 - 4</b>
The Honors Project class is designed to provide undergraduate students with practical experience in the pharmaceutical sciences through research, outreach and engagement, internships, and other activities. Prereq: Honors standing, and enrollment in the BSPS program. Repeatable to a maximum of 4 or hrs. This course is graded S/U.			
<b>4998</b>	<b>General Undergraduate Research</b>	<b>U</b>	<b>1 - 18</b>
Course credit earned by conducting research while enrolled as an undergraduate student. Repeatable to a maximum of 60 or hrs or 12 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 18</b>
Culmination of undergraduate research in the form of written thesis. Repeatable to a maximum of 60 or hrs or 12 completions. This course is graded S/U.			
<b>5000</b>	<b>Interdisciplinary Case Management for Working with Underserved Populations</b>	<b>U G P</b>	<b>2</b>
This course will provide students the opportunity to collaborate with students from other health care professions including pharmacy, health and rehabilitation sciences, nursing, medicine and social work. The students will use a problem-based learning approach to patient care in community health, focusing on populations, living in poverty, with complex healthcare needs. Prereq: Jr or Sr standing in the BSPS program, enrollment in the PharmD program, or permission of instructor. Repeatable to a maximum of 6 or hrs. This course is graded S/U. Cross-listed in HthRhSc 5000, Nursing 5000, and SocWork 5018.			
<b>5005</b>	<b>Fundamentals of Pathophysiology</b>	<b>U G</b>	<b>3</b>
This course provides a fundamental overview of human pathophysiology by comparing dysfunctional body processes to normal physiological function. Case studies will be applied to pathophysiological phenomena. Prereq: Admission to the MS Translational Pharmacology or Master of Clinical Research program, or permission of instructor. Not open to students with credit for HthRhSc 5500, or enrollment in PharmD program.			

<b>5010</b>	<b>Fundamentals of Pharmacology</b>	<b>U G</b>	<b>3</b>
This course overviews principles underlying drug action, including an investigation of current treatments for a variety of common diseases. In addition, this course will implement activities that emphasize the ethical aspects and implications of a variety of drug therapies. Prereq: Not open to students with credit for 2010, or 4400, or Pharmcl 5600, or HthRhSc 5510; or enrollment in PharmD program.			
<b>5270</b>	<b>Antibiotics and Microbial Natural Products</b>	<b>U G P</b>	<b>3</b>
Microorganisms represent the largest trove of genetic and metabolic diversity in the world. They are responsible for producing a vast array of chemically diverse natural product small molecules. This course covers the biology behind the chemistry of these molecules and their role in human medicine. Prereq: A grade of C- or above in 4000, Biochem 5614, or Micrbio 4120; or Grad standing; or permission of instructor. Cross-listed in Micrbio.			
<b>5402</b>	<b>Economic Evaluation of Pharmaceutical and Health Care Interventions</b>	<b>U G P</b>	<b>3</b>
Introduction to economic evaluation of pharmaceutical and other health care interventions and services, including evaluating costs and health outcomes, using results to inform resource allocation, interpretation and evaluation of economic evaluations in the literature, and decision analysis in health care. Prereq: Grad, Jr, or Sr standing. Not open to students with credit for Nursing 7402.			
<b>5410</b>	<b>Understanding and Changing Vaccine Hesitancy Perspectives</b>	<b>U G P</b>	<b>3</b>
Vaccines are among the most significant achievements in modern medicine, providing a safe and highly effective means to prevent disease. However, an increasing number of individuals are refusing vaccination. In this course, we analyze contributing factors to the anti-vaccine movement, discuss the psychology behind vaccine hesitancy, and evaluate the implications of undervaccination.			
<b>5460</b>	<b>Current Addiction Neurobiology Literature</b>	<b>U P</b>	<b>1</b>
Current research findings relating to neurobiology of addiction are explained and interpreted. Students should have some introductory knowledge of neurobiology. Repeatable to a maximum of 9 or hrs.			
<b>5500</b>	<b>History of Pharmacy</b>	<b>U P</b>	<b>3</b>
Evolution and development of the profession of pharmacy from antiquity to the present, with emphasis on its Anglo-American development since the 18th century. Prereq: Soph standing in BSPS, or enrollment in PharmD program. Not open to students with credit for 5130.			
<b>5505</b>	<b>Pay It Forward</b>	<b>U P</b>	<b>2</b>
This course helps students become philanthropists through volunteering and creating services through grants for the community. PharmD and BSPS students will collaborate together in small groups to develop different projects for community partners. Pay It Forward exists in support from Ohio Campus Compact on campuses throughout Ohio. Prereq: Enrollment in the PharmD or BSPS programs. This course is graded S/U.			
<b>5510</b>	<b>Basics of Pharmaconutrition</b>	<b>U P</b>	<b>3</b>
Covers basic information on the effects of dietary factors on pharmaconutrition to be utilized as a foundation in solving patient-related cases in pharmacy practice. Prereq: Undergrad standing, enrollment in the PharmD program, or permission of instructor.			
<b>5520</b>	<b>Advanced Pharmaconutrition</b>	<b>U G P</b>	<b>2</b>
Provides concepts needed by pharmacists necessary to include nutrition into their daily assessment of patients and integrate their findings into the therapeutic plan. Prereq: 5510, and enrollment in the College of Pharmacy; or permission of instructor. Not open to students with credit for Phr 5155.			
<b>5525</b>	<b>Advocacy in Pharmacy</b>	<b>U P</b>	<b>2</b>
Informs and engages students in legislation, the role of advocacy in Pharmacy, current healthcare issues, and how students and organizations can make a difference in the future of Pharmacy practice. Completion of Pharmacy 2510: Introduction to Pharmacy recommended for undergraduates. Prereq: Enrollment in BSPS program or Doctor of Pharmacy program, or permission of instructor.			
<b>5540</b>	<b>Introduction to Clinical &amp; Translational Pharmacy Research</b>	<b>U P</b>	<b>2</b>
Introduction to conducting research in clinical pharmacy including research design issues and to ethical considerations. Faculty conducting research in various populations will discuss their research, followed by class discussion. Prereq: 4000, and enrollment in the PharmD or BSPS program. Not open to students with credit for 5170. This course is graded S/U.			
<b>5550</b>	<b>Topics in International Pharmacy</b>	<b>U G P</b>	<b>2</b>
Seminar on global pharmaceutical issues and international practices of pharmacy. Prereq: Jr or Sr standing. Not open to students with credit for 5180. This course is graded S/U.			
<b>5560</b>	<b>Success &amp; Leadership in Pharmacy</b>	<b>U G P</b>	<b>1½</b>
Explore the meaning of success and leadership, attributes of successful leaders and what can be done to be a successful leader. Prereq: Enrollment in College of Pharmacy, or permission of instructor. Not open to students with credit for 5610. This course is graded S/U.			

**5580 Professional Ethics U P 1½**

The conceptual basis and content of pharmaceutical ethics; significance of codified ethics, interprofessionally considered; individual and group analysis of ethical issues; methods of encouraging compliance.

Prereq: Soph standing in BSPS program, or enrollment in PharmD program. Not open to students with credit for 5140.

**5590 Chemical Dependency and the Healthcare Professional U G P 3**

This lecture- and discussion-based course provides instruction, debate and exploration relating to the impact of chemical dependency on healthcare professionals, including the concepts of addiction, individuals at risk, intervention, withdrawal, emotions, recovery networks, regulatory actions and returning to practice.

**5700 Introduction to Personalized Therapeutics and Pharmacogenomics U G P 3**

Exploration of the trend to therapy tailored to the individual patient rather than "one drug fits all;" inter-individual differences in drug responses, with emphasis on genetic and genomic factors; ethical, regulatory, and economic issues that impact drug therapies. Credit for introductory biology course recommended prior to enrollment.

Cross-listed in BioPharm and CBG.

**5797 Study at a Foreign Institution U G P 1 - 18**

An opportunity for students to study at a foreign institution and receive OSU credit for work completed there. Students will pay OSU fees and any fees in excess of OSU tuition, as well as all travel and subsistence costs.

Prereq: Permission of department. Repeatable to a maximum of 54 cr hrs or 3 completions.

**5798 International Healthcare Experience in Pharmacy U P 3**

Preparation for traveling abroad to a destination country. Students will be introduced to the culture, history, and healthcare practice in the destination country. Evaluation will be based on participation in individual class sessions and fulfillment of assignments.

Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

**6001 Introductory Pharmacy Practice Experiences I P 1**

First in a two-module sequence of part-time experiences that enhance and complement first-year professional coursework. Students engage in activities in community pharmacies and with other pharmacy partners. Activities provide foundation for attitudes and skills that will be applied during the professional practice laboratory.

Prereq: Enrollment in the Doctor of Pharmacy program. This course is graded S/U.

**6002 Introductory Pharmacy Practice Experiences II P 1**

Second in a two-module sequence of part-time experiences that enhance and complement first-year professional coursework. Students engage in activities in community pharmacies and with other pharmacy partners. Activities provide foundation for attitudes and skills that will be applied during the professional practice laboratory.

Prereq: Enrollment in PharmD program. This course is graded S/U.

**6101 Transitions I P 1**

Provides students with an orientation to pharmacy school as well as essential skills and tools for successful matriculation to the professional PharmD curriculum.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6102 Transitions II P ½**

This course builds on skills and knowledge gained in the first year of the program in preparation for a summer intensive professional experience and the second year curriculum. The major course themes are leadership, entrepreneurship, and innovation.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6191 Pharmacy Internship for Curricular Practical Training P 0**

Provides additional experience in a professional pharmacy setting which is necessary to prepare students for experiential rotations that are a required part of the curriculum as the student progresses towards their Doctor of Pharmacy degree. This course accompanies the active pursuit of a pharmacy internship experience which satisfies the requirements for curricular practical training.

Prereq: Submitted CPT application, and letter of offer from CPT site, and permission of instructor. This course is graded S/U.

**6193 Individual Studies in Pharmacy P ½ - 12**

Laboratory and library work designed to give the qualified student an opportunity to complete an original investigation or pursue an interest in a special problem.

Prereq: Enrollment in PharmD program, and permission of instructor. Repeatable to a maximum of 30 cr hrs or 12 completions. This course is graded S/U.

**6194 Group Studies in Pharmacy P 1 - 12**

Group studies topics in various fields of Pharmacy.

Prereq: Enrollment in PharmD, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completion.

**6201 Foundations in Pharmacy Administration I P 2**

An introduction to the U.S. healthcare system, management, leadership, and pharmacy law, in preparation for roles as pharmacy interns and future pharmacy practitioners.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6301 Concepts in Patient Care I P 3**

The first in a two-module sequence addressing concepts and skills that are essential components of exemplary patient care. This module focuses on oral and written communication and drug information skills in the context of using the patient care process to counsel patients about the selection and use of nonprescription medications particularly in community and ambulatory care pharmacy settings.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6302 Concepts in Patient Care II P 2½**

The second in a two-module sequence addressing concepts and skills that are essential components of exemplary patient care. This module focuses on oral and written communication and drug information skills in the context of using the patient care process to counsel patients about the selection and use of nonprescription medications, particularly in community and ambulatory care pharmacy settings.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6401 Integrated Patient Care Laboratory I P 3**

First in a two-module professional practice laboratory sequence. Topics include preparation/dispensing of various dosage forms, communication, use of drug information resources, and use of instruments.

Prereq: Enrollment in the Doctor of Pharmacy Program.

**6402 Integrated Patient Care Laboratory II P 3**

Second in a two-module professional practice laboratory sequence. Topics include preparation/dispensing of various dosage forms, communication, use of drug information resources, and use of instruments.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6501 Principles of Drug Action I P 5**

This module provides basic foundations in the pharmaceutical sciences necessary for the understanding of drugs and the determinants of drug action. The module covers biochemistry and physiology of drug action, physical chemistry of pharmaceutical products, medicinal chemistry and pharmacokinetics.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6502 Principles of Drug Action II P 8**

This module provides basic foundations in the pharmaceutical sciences necessary for the understanding of drugs and the determinants of drug action. The module covers biochemistry and physiology of drug action, physical chemistry of pharmaceutical products, medicinal chemistry and pharmacokinetics.

Prereq: Enrollment in the Doctor of Pharmacy program.

**6550 Pharmacy Students East Meets West Videoconference P 1**

This is a seminar course focused on pharmaceutical issues in the United States and Taiwan.

The course will provide students the opportunity to interact with pharmacy students from overseas to learn about global pharmacy practice. The students will use a team-based learning approach in a flipped classroom setting.

Prereq: Enrollment in PharmD program, or permission of instructor. This course is graded S/U.

**6701 Program Level Assessment I P ½**

The purpose of the PLA is to assess students' competence with knowledge and skills delivered in the P1 year and readiness to proceed in the curriculum.

Prereq: Enrollment in PharmD program. This course is graded S/U.

**7000 Pharm.D. Program Course Remediation P ½ - 4**

This course will be offered at the discretion of the Pharm.D. Academic Review Committee to remediate a course that requires successful completion as a program requirement. This may be used to fulfill the requirement of successful completion of required coursework and repeated within Pharm.D., but students cannot enroll in 7000 more than once for the same course.

Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Pharm.D. Academic Review Committee. Repeatable to a maximum of 12 cr hrs or 3 completions. This course is graded S/U.

**7000.11 Advanced Pharmacy Practice Experience I Remediation P ½ - 2½**

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.

Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 cr hrs or 3 completions.

**7000.12 Advanced Pharmacy Practice Experience II Remediation P ½ - 2½**

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.

Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 cr hrs or 3 completions.

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**7000.13 Advanced Pharmacy Practice Experience III Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 or hrs or 3 completions.

**7000.14 Advanced Pharmacy Practice Experience IV Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 or hrs or 3 completions.

**7000.15 Advanced Pharmacy Practice Experience V Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 or hrs or 3 completions.

**7000.16 Advanced Pharmacy Practice Experience VI Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee.

**7000.17 Advanced Pharmacy Practice Experience VII Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 or hrs or 3 completions.

**7000.18 Advanced Pharmacy Practice Experience VIII Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 or hrs or 3 completions.

**7000.19 Advanced Pharmacy Practice Experience IX Remediation** P ½ - 2½

This course will be offered at the discretion of the Director of Experiential Education or the Pharm.D. Academic Review Committee to remediate a required APPE course. This may be used to fulfill the requirement of successful completion of the required APPE course and may be repeated within the Pharm.D. program.  
Prereq: Enrollment in the Doctor of Pharmacy program, and approval of the Director of Experiential Education or the Pharm.D. Academic Review Committee. Repeatable to a maximum of 7.5 or hrs or 3 completions.

**7003 Introductory Pharmacy Practice Experiences III** P 1

Introductory pharmacy practice experiences. Students apply didactic pharmacy course work in a variety of pharmacy practice settings.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7004 Introductory Pharmacy Practice Experiences IV** P 1

Introductory pharmacy practice experiences. Students apply didactic pharmacy course work in a variety of pharmacy practice settings.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7005 Introductory Pharmacy Practice Experiences V** P 1

Introductory pharmacy practice experiences. Students apply didactic pharmacy course work in a variety of pharmacy practice settings.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7006 Introductory Pharmacy Practice Experiences VI** P 1

Introductory pharmacy practice experiences. Students apply didactic pharmacy course work in a variety of pharmacy practice settings.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7007 Introductory Pharmacy Practice Experiences VII** P 2

Introductory pharmacy practice experiences. Students apply didactic pharmacy course work in a variety of pharmacy practice settings.  
Prereq: Enrollment in PharmD program.

**7008 Professional Activities** P ½

Independent study activities related to advanced pharmacy practice experiences.  
Prereq: Enrollment in the PharmD program. Repeatable to a maximum of 3 or hrs. This course is progress graded (S/U).

**7010 Advance Pharmacy Practice Experiences Option** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor. Repeatable to a maximum of 12 or hrs.

**7011 Advance Pharmacy Practice Experiences I** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7012 Advance Pharmacy Practice Experiences II** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7013 Advance Pharmacy Practice Experiences III** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7014 Advance Pharmacy Practice Experiences IV** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7015 Advance Pharmacy Practice Experiences V** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7016 Advance Pharmacy Practice Experiences VI** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7017 Advance Pharmacy Practice Experiences VII** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7018 Advance Pharmacy Practice Experiences VIII** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7019 Advance Pharmacy Practice Experiences IX** P 2½

Advanced pharmacy practice experience rotations including ambulatory, community, institutional and elective settings. Students may receive Honors Level Performance distinction and have a textual note added to their official University transcript.  
Prereq: Enrollment in PharmD program, or permission of instructor.

**7103 Transitions III** P ½

This module will provide students with essential skills and tools for successful matriculation to their advanced pharmacy practice experiences. It will also continue the development of skills within the affective domain.  
Prereq: Enrollment in PharmD program.

**7104 Transitions IV** P 1

This module will provide students with essential skills and tools for successful transition into their role as new practitioner pharmacists. This course is the fourth of a four-course sequence designed to teach PharmD students skills in self-awareness, leadership, innovation, entrepreneurship, and professionalism that are necessary at vital transitions in a career in pharmacy.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7130 Humanistic Pharmacy P 2**

The fundamental principles of humanistic practice are open communication, mutual respect, and absence of judgment between patients and health care providers. This course will use current literature, patient cases, speakers, personal reflection, and group exercises to empower students to provide and advocate for humanistic healthcare.  
Prereq: Enrollment in the PharmD program.

**7140 Neurobiology of Addiction G P 2**

Covers current knowledge of changes in molecular and circuit pathways in the brain that occur in response to use of addictive drugs and are thought to underlie the behavioral challenges of addiction.

Prereq: Grad standing in Phr, or enrollment in PharmD program, or permission of instructor.

**7150 Pediatric Pharmacotherapy P 1½**

A review of pediatric pharmacotherapy of selected diseases with pharmaceutical care ramifications in various settings.

Prereq: Enrollment in PharmD program, or permission of instructor.

**7170 Pain Palliative Care and Geriatrics P 3**

Chronic pain management, palliative care and geriatric pharmacotherapy. Topics address interdisciplinary viewpoints related to disease and associated symptoms management in geriatric and end-of-life care.

Prereq: Enrollment in PharmD program, or permission of instructor.

**7180 CNS Drug Discovery P 1**

The primary objective of this course is to help students learn to critically evaluate scientific papers in the area of CNS drug discovery and to present their evaluations to their colleagues.

This objective will be achieved through lecture, student presentations, and group discussions of current, high-impact CNS pharmacological or related research.

Prereq: Grad standing, enrollment in PharmD program, or permission of instructor. Not open to students with credit for 8720.

**7190 Topics in Oncology Pharmacy P 1**

This course aims to expand students' understanding of oncology topics. It will be taught by oncology specialist pharmacists and PGY2 pharmacy residents from The James Cancer Hospital. Students will be exposed to oncology pharmacy administration, medication assistance programs, therapeutics lectures, chemotherapy patient education, relevant current events, and career paths in oncology pharmacy.

Prereq: Second or Third-year standing in the PharmD program, or permission of instructor. This course is graded S/U.

**7200 Patient Care Services in Community and Ambulatory Pharmacy Practice P 1**

Encourages application of pharmacy practice principles & project management skills to community & ambulatory pharmacy. Opportunities & barriers to providing direct patient care in ambulatory care & community pharmacy settings, maintaining collaborative relationships, continuous practice improvement, demonstrating the value of pharmacy practice for stakeholders will be discussed and applied.

Prereq: Completion of first year in the PharmD program. This course is graded S/U.

**7202 Foundations In Pharmacy Administration II P 3**

This course will provide students with an understanding of pharmacy practice management as it fits into the contemporary healthcare system. Students will become familiar with general management concepts and skills that can be applied in a variety of pharmacy practice settings in the evolving healthcare system.

Prereq: Enrollment in PharmD program.

**7230 Introduction to Veterinary Pharmacy G P 3**

This elective is an introductory course to veterinary pharmacotherapy. It will cover basic principles of anatomy and physiology of veterinary patients; the differences in medication pharmacology, pharmacodynamics, pharmacokinetics, and therapeutics in veterinary and human patients; and the laws and regulations that are applicable to veterinary pharmacy.

Prereq: Enrollment in PharmD program.

**7250 Introduction to Critical Care Pharmacy Practice P 3**

This course will be an introduction to pharmacy practice in the intensive care unit and the care of critically ill patients. The primary focus of each class session will be the basic physiologic alterations associated with critical illness and the evidence-based rationale for various therapeutic maneuvers commonly utilized in critically ill patients.

Prereq: Third year standing in PharmD program, or permission of instructor. This course is graded S/U.

**7260 The Business of Pharmacy P 3**

The intent of this course is to build important 21st century business value skills and expertise, for pharmacy professionals interested in acquiring business knowledge for the purpose of taking on successive management and leadership roles in the healthcare environment. Learners will gain the knowledge and skills necessary for a successful career in the healthcare industry.

Prereq: Enrollment in PharmD program, or permission of instructor.

**7280 Medical Outreach Trips: Making the Most of Service and Learning in Central America P 2**

Pharmacy practice finds its place in international healthcare. The goal of this course is to educate the student on medical outreach and holistically prepare the student for service-learning opportunities primarily focused in Honduras.

**7303 Concepts in Patient Care III P 1½**

This course focuses on communication and drug information skills in the context of understanding and utilizing the patient care process. Communication and drug information skills will be discussed and applied in the context of community & ambulatory care pharmacy practice.

Prereq: Enrollment in PharmD program.

**7304 Concepts in Patient Care IV P 1½**

The fourth in a series of modules addressing concepts and skills that are essential components of exemplary patient care. This module focuses on learning the elements and process involved in Medication Therapy Management. The module also includes skill development of working in an Interprofessional environment as well as appropriate drug information response and medical literature citations.

Prereq: Enrollment in PharmD program.

**7305 Concepts in Patient Care V P 3**

This is the last course in a series of courses addressing concepts and skills that are essential components of exemplary patient care. This module focuses on advancing professional practice skills and concepts related to nonprescription products and integrative medicine practices. Materials will be delivered via lectures, small group activities, and case-based discussions.

Prereq: Enrollment in PharmD program.

**7350 Drug Discovery and Drug Design G 2**

A study of the discovery and design of new drugs; topics include natural products isolation, molecular modeling, molecular targets, and biosynthesis and metabolism.

Prereq: Grad standing, and permission of instructor.

**7351 Special Topics in Medicinal Chemistry and Pharmacognosy G 2**

This course provides advanced training in specialized topics in medicinal chemistry relevant to research interests in the field. The course will enhance students' problem-solving skills, and students will develop grant writing skills related to research topics in medicinal chemistry.

Prereq: 7350, or permission of instructor. Not open to students with credit for 8350, 8360, or 8370.

**7370 Advanced Pharmaceutical Analysis G 2**

The use of NMR spectroscopy in the assay and control methods of drug preparations.

Prereq: Grad standing.

**7403 Integrated Patient Care Laboratory III P 3**

This course is a series of authentic, hands-on experiences that enable students to master component skills that are essential for exemplary patient care and practice integrating those skills in simulated practice settings. Topics include sterile compounding, institutional pharmacy practice, and electronic health records. Students will also continue to develop skills introduced earlier in IPCAL.

Prereq: Enrollment in PharmD program.

**7404 Integrated Patient Care Laboratory IV P 3**

The fourth course in a series of authentic, hands-on experiences that enable students to master component skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.

Prereq: A grade of D or above in 7601, and enrollment in PharmD program.

**7405 Clinical Research Study and Site Management G P 3**

Fundamental principles of clinical research operations from study site selection to study closure from the perspective of sponsors and clinical research sites including an introduction to database design, management, quality assurance, and reporting for site and sponsor operations.

Prereq: Nursing 7770 or Phr 7770, or permission of instructor. Cross-listed in Nursing.

**7406 Integrated Patient Care Laboratory V P 3**

This is the fifth course in a series of authentic, hands-on experiences that enable students to master component skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.

Prereq: A grade of D or above in 7602, and enrollment in PharmD program.

**7407 Integrated Patient Care Laboratory VI P 3**

The sixth course in a series of authentic, hands-on experiences that enable students to master component skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.

Prereq: A grade of D or above in 7603, and enrollment in PharmD program.

**7460 Regulatory Strategy and Clinical Trial Reporting G P 3**

Explores regulatory strategy in new medical product development and lifecycle management. Develops scholarly and technical writing skills for regulatory professionals regarding new drug submissions to the Food and Drug Administration (FDA). Describes regulations and guidelines for clinical trial transparency.

Prereq: 7770, Nursing 7770, or permission of instructor.

**7510 Teaching in Pharmacy P 3**

The intent of the course is the preparation of clinical educators who can inspire learners to advance the profession of pharmacy. The course provides exposure to the educational planning process and provides a mix of theory and application. Students will gain the knowledge and skills necessary to facilitate their own development as clinician educators.

Prereq: 2nd yr standing or above in PharmD program. This course is graded S/U.

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<b>7550</b>	<b>Research Applications of Clinical Pharmacology</b>	<b>G</b>	<b>3</b>
Application of basic and advanced concepts in pharmacology to contemporary research literature to solidify understanding of the pharmacologic principles underlying the individualization of drug therapy and contemporary drug development. Fundamentals of clinical pharmacology for the development, evaluation, and clinical use of pharmaceutical products. Prereq: 5010, BioPhrm 5600, HthRhSc 5510, or other general pharmacology course; or permission of instructor. Cross-listed in BioPhrm.			
<b>7560</b>	<b>Clinical Trials I: Design and Regulation</b>	<b>G P</b>	<b>3</b>
This course provides a fundamental overview of clinical trial design, methods, and regulation with an emphasis on medical product development, clinical trial protocols, preclinical research requirements, and the appraisal of published clinical trials. Prereq: Enrollment in the MS Translational Pharmacology program, or permission of instructor. Not open to students with credit for Nursing 7770 or Phr 7770. Cross-listed in BioPhrm and Nursing.			
<b>7561</b>	<b>Clinical Trials II: Site Management and Study Leadership</b>	<b>G P</b>	<b>3</b>
This course provides a fundamental overview of best practices of clinical trial study and site management, including an emphasis on data, safety, and quality management, and study team leadership. Prereq: 7560, BioPhrm 7560, or Nursing 7560, or permission of instructor. Not open to students with credit for 7405 or Nursing 7405. Cross-listed in BioPhrm and Nursing.			
<b>7562</b>	<b>Design and Management of Preclinical Studies</b>	<b>G P</b>	<b>3</b>
Fundamental overview of preclinical study design, methods, and regulation with an introduction to the clinical development process. Provides a synopsis of best practices of preclinical trial site and study management, quality and data management, and leadership in the context of preclinical and translational research endeavors. Prereq: Admission to the MS Translational Pharmacology program, or permission of instructor.			
<b>7570</b>	<b>Pharmaceutical Safety and Risk Management</b>	<b>G P</b>	<b>3</b>
Comprehensive investigation of pharmacovigilance initiatives and pharmaceutical safety regulation. Pharmaceutical risk management in premarket testing and development, recognition of safety signals, post-approval experience, drug production, risk mitigation, and administration of pharmaceuticals. Prereq: 7770, Nursing 7770, or permission of instructor.			
<b>7572</b>	<b>Global Regulation of Medical Products</b>	<b>G P</b>	<b>3</b>
Exploring legal issues related to clinical research and regulatory affairs. Examining the role of regulatory authorities, regulations and guidelines (US, EU and global) in new product development, including Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP). Prereq: 7770 or Nursing 7770, or permission of instructor.			
<b>7580</b>	<b>Principles of Safety Pharmacology</b>	<b>G P</b>	<b>3</b>
Introduction to organ system studies of current experimental models, risk assessment, and regulatory guidelines for evaluating drug candidates in various organ systems. Prereq: Admission to the MS Translational Pharmacology or Master of Clinical Research program, or permission of instructor.			
<b>7582</b>	<b>Organ System Toxicology</b>	<b>G P</b>	<b>3</b>
Principles of toxicology, physiology and pharmacology as they relate to adverse and unanticipated drug effects. Emphasis on cardiovascular, nervous, pulmonary, liver, and kidney systems. Open to students in MS Pharmacology program. Other students, including advanced undergraduate students, may enroll with permission of instructor. Completion of a basic pharmacology class useful but not required. Prereq: Admission to the MS Translational Pharmacology program, or permission of instructor.			
<b>7583</b>	<b>Advanced Organ Systems Toxicology and Risk Assessment</b>	<b>G P</b>	<b>3</b>
Principles of risk assessment, toxicology, and physiology as they relate to effects of chemical and pharmacologic agents on the blood, immune, ocular, skin, reproductive, endocrine systems. Includes a review of chemical carcinogenesis, genetic, and developmental toxicity as they relate to chemical or drug exposure. Prereq: 7582, or permission of instructor.			
<b>7584</b>	<b>Applied Pharmacokinetics and Pharmacodynamics</b>	<b>G</b>	<b>3</b>
Introduction to basic and advanced concepts in pharmacokinetics, pharmacodynamics, and pharmacology for clinical investigators and other research professionals participating in the conduct of clinical trials. Prior coursework in pharmacology recommended. Prereq: Admission to the MS Translational Pharmacology program, or permission of instructor. Not open to students with credit for 8020, or 7310 and 7320.			
<b>7586</b>	<b>Integrative in Vivo Modeling for Drug Development: Application for Safety and Clinical Pharmacology</b>	<b>G P</b>	<b>3</b>
Evaluating drug effects and animal models for safety and toxicity assessment. Prereq: 7582, or permission of instructor.			
<b>7588</b>	<b>Toxic Substances</b>	<b>G P</b>	<b>3</b>
Survey the effects of toxic substances on biological systems including the mechanism of action for major toxicants, sources of toxicants, signs and symptoms associated with intoxications, and methods of treatment. Substances presented will include those that may be encountered occupationally, environmentally, medically, and in the context of substance abuse. Recommended prereq: 7582.			

<b>7595</b>	<b>Scientific Writing: Clinical Trial Protocol and Manuscript Development</b>	<b>G</b>	<b>3</b>
Best practices in scientific writing; development of an interventional clinical trial protocol (drug/device studies) and the generation of a manuscript for publication. Prereq: Admission to the MS Pharmacology program, or permission of instructor. Cross-listed in BioPhrm 7598.			
<b>7597</b>	<b>Scientific Writing: Preclinical Study Protocol and Manuscript Development</b>	<b>G P</b>	<b>3</b>
Best practices in scientific writing; development of an interventional (drug/device) safety or efficacy preclinical study protocol and the generation of a manuscript for publication. Prereq: Enrollment in the MS Translational Pharmacology program, or permission of instructor.			
<b>7599</b>	<b>Culminating Project in Clinical Research</b>	<b>G</b>	<b>3</b>
The culminating project is an independent scholarly project that allows students to apply skills and competencies acquired across the master's program in clinical research. During the course, students will also complete their professional ePortfolio. Prereq: Enrollment in the Master of Clinical Research, or permission of the program director. Cross-listed in Nursing.			
<b>7601</b>	<b>Integrated Pharmacotherapy I</b>	<b>P</b>	<b>9½</b>
Teach Pharm.D. students pathophysiology, pharmacology, and pharmacotherapy using an integrated approach. This approach facilitates the development of a rigorous understanding of the scientific basis for preventing and managing human health disorders, and the ability to integrate and apply that knowledge while providing exemplary medication-related patient-centered and population-based care. Prereq: Enrollment in PharmD program.			
<b>7602</b>	<b>Integrated Pharmacotherapy II</b>	<b>P</b>	<b>9½</b>
This course is designed to help Pharm.D. students develop a rigorous understanding of the scientific basis for preventing and managing human health disorders, and the ability to integrate and apply that knowledge while providing exemplary medication-related patient-centered and population-based care. Prereq: Enrollment in PharmD program.			
<b>7603</b>	<b>Integrated Pharmacotherapy III</b>	<b>P</b>	<b>8</b>
This course is designed to help Pharm.D. students develop a rigorous understanding of the scientific basis for preventing and managing human health disorders, and the ability to integrate and apply that knowledge while providing exemplary medication-related patient-centered and population-based care. Prereq: Enrollment in PharmD program.			
<b>7604</b>	<b>Integrated Pharmacotherapy IV</b>	<b>P</b>	<b>7½</b>
This course is designed to help PharmD students develop a rigorous understanding of the scientific basis for preventing and managing human health disorders, and the ability to integrate and apply that knowledge while providing exemplary medication-related patient-centered and population-based care. Prereq: Enrollment in PharmD program.			
<b>7620</b>	<b>Topics in Emergency Medicine Pharmacotherapy</b>	<b>P</b>	<b>2</b>
Introduction to the interdisciplinary processes of care in Emergency Medicine and the practice of pharmacy in the Emergency Department. Material will be collaboratively taught by faculty members from the Colleges of Pharmacy, Medicine and Nursing through lecture and round-table discussion with active participation. Prereq: Third year standing in PharmD program, or permission of instructor. This course is graded S/U.			
<b>7650</b>	<b>Personal Finance for the Health, Law, and Public Policy Professionals</b>	<b>G P</b>	<b>3</b>
This course is designed for the graduate student that wants to learn more about personal finance. The course will cover topics such as budgeting with significant student loan debt, the importance of insurance coverage, home and auto loan purchasing, credit card management, employee benefits, investing, retirement, income tax, and estate planning. Prereq: Enrollment in the health professions, law, or public policy programs. Repeatable to a maximum of 6 or hrs. This course is graded S/U. Cross-listed in BusFin.			
<b>7702</b>	<b>Program Level Assessment II</b>	<b>P</b>	<b>½</b>
The purpose of the PLA is to assess students' competence with knowledge and skills delivered in the P2 year and readiness to proceed in the curriculum. Prereq: Enrollment in PharmD program. This course is graded S/U.			
<b>7703</b>	<b>Program Level Assessment III</b>	<b>P</b>	<b>½</b>
The profession of pharmacy requires pharmacists to use different aspects of their education to resolve problems and juggle multiple tasks at the same time. In order to provide a foundation for these skills, module-based assessments are supplemented in the P3 year with the annual program-level assessment or PLA. Prereq: Enrollment in PharmD program.			
<b>7770</b>	<b>Fundamentals of Medical Product Development and Regulation</b>	<b>G P</b>	<b>3</b>
Function of clinical research in medical product development and the regulatory process of new medical products. Laws and regulations concerning the development, testing, commercialization, and total product life cycle for medical products. Regulations governing the conduct of clinical research, including study sponsors, investigators, and Institutional Review Boards. Prereq: Admission to the Master of Clinical Research program, or permission of instructor. Cross-listed in Nursing.			



**7782 Clinical Research Design and Methods G P 3**

Study of research design and methods used in clinical research. Measurement issues, bias and confounding, statistical considerations, evaluation of published clinical research designs, and protocol and proposal development.  
Prereq: Admission to the Master of Clinical Research program, or permission of instructor.  
Cross-listed in Nursing.

**7784 Data Analysis and Interpretation in Clinical and Preclinical Research G P 3**

Introduction to the principles of biostatistical methods used in biomedical research. Analysis of clinical and preclinical research data and interpretation of statistical results in biomedical studies.  
Prereq: Enrollment in Master of Clinical Research program or MS Translational Pharmacology program, or permission of instructor. Not open to students with credit for PubHBio 6210.

**7801 Interprofessional Education I P ½**

This is the first of a four-course sequence designed to teach PharmD students how to advance collaboration and quality of patient care by providing interprofessional opportunities for students to learn about, from, and with other members of the healthcare team.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7802 Interprofessional Education II P ½**

This is the second of a four-course sequence designed to teach PharmD students how to advance collaboration and quality of patient care by providing interprofessional opportunities for students to learn about, from, and with other members of the healthcare team. This required course will have 3 interactive collaborations per semester.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7803 Interprofessional Education III P ½**

This is the third of a four-course sequence designed to teach PharmD students how to advance collaboration and quality of patient care by providing interprofessional opportunities for students to learn about, from, and with other members of the healthcare team. This required course will have 3 interactive collaborations per semester.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7804 Interprofessional Education IV P ½**

This is the fourth of a four-course sequence designed to teach PharmD students how to advance collaboration and quality of patient care by providing interprofessional opportunities for students to learn about, from, and with other members of the healthcare team.  
Prereq: Enrollment in PharmD program. This course is graded S/U.

**7860 Pharmacy Practice Management P 4**

The medication use system, resource management, and the economic evaluation of pharmaceutical services and pharmacoepidemiology.  
Prereq: Enrollment in PharmD program, or permission of instructor. Not open to students with credit for Pharmacy 786 or 788.

**7891 Chromatographic Methods G 2**

A study and application of selected chromatographic techniques for the purification of natural products or other organic mixtures.  
Prereq: Grad standing, and permission of instructor.

**7893 Phytochemical Analysis of Natural Products G 2**

This course is intended to provide graduate students with the basic skills to be able to select and apply proper techniques to natural product samples for drug discovery, method design, and validation purposes.

**7900 Pharmaceutical Jurisprudence P 2**

A study of the laws and regulations relating to the practice of pharmacy.  
Prereq: Enrollment in PharmD program, or permission of instructor. Not open to students with credit for Pharmacy 790.

**8005 Fundamentals of Drug Disposition G 3**

An introduction to concepts in drug disposition. Fundamental concepts in drug absorption, distribution, metabolism and excretion (i.e. pharmacokinetics) will be covered.  
Prereq: Enrollment in the College of Pharmacy.

**8008 Pharmaceutical Sciences Research and Communication G 1**

An introduction to contemporary concepts in experimental design, data interpretation, and scientific writing in the pharmaceutical sciences. Students will begin to develop their skills in scientific writing, with a particular focus on manuscripts.  
Prereq: Enrollment in College of Pharmacy.

**8025 Pharmacometrics G 3**

This is an advanced course focusing on population PK/PD modeling. The course comprises an intensive workshop with hands-on training in the application of pharmacometrics principles and use of statistical modeling software (NONMEM and R).  
Prereq: 8020 and Math 2415, or any differential equations course; or permission of instructor.

**8070 Advanced Drug Delivery Systems G 2**

Topics on drug delivery systems with emphasis on tumor targeted delivery and nanovehicles.  
Prereq: Grad standing, or permission of instructor.

**8100 Health System Pharmacy Finance G 3**

This course covers selected aspects of financial and managerial accounting as it relates to health systems and pharmacy. Learners will be introduced to financial concepts, issues, vocabulary, and tools that are needed by pharmacy leaders in the healthcare industry.  
Prereq: Enrollment in the MS in Health-System Pharmacy program, or permission of instructor.

**8120 Information Systems for Health-System Pharmacy G 1½**

Provides an advanced understanding of information systems, technology and automation systems for health system pharmacy. Includes the various uses and benefits as well as challenges in implementing new technology.  
Prereq: 8160, and enrollment in MS in Health-System Pharmacy program; or permission of instructor.

**8130 Advanced Management and Leadership Principles G 2**

The purpose of this course is to equip students with skills and resources that will enable them to become effective managers and organizational leaders by igniting or fueling students' passion for leadership development. This course will delve into concepts of organizational behavior, management dilemmas, diversity, implicit bias, ethical conundrums, and change management.  
Prereq: Enrollment in MS in Health-System Pharmacy program, or permission of instructor.

**8140 Research Methodology G 2**

Apply research and design methodology to resolving health system pharmacy issues.  
Prereq: Enrolled in MS in Health-Systems Pharmacy, or permission of instructor.

**8150 Systems Issues with Medication Safety G 2**

Describes the components of an effective system for tracking, trending, and reporting adverse drug events (ADE). Understand the techniques used in investigating the causes of events. Integrate medication safety activities as a component of the organizations' safety culture.  
Prereq: Enrolled in MS in Health-System Pharmacy program, or permission of instructor.

**8160 Operations Management in Health System Pharmacy G 2**

Reviews the medication use system, evidence-based practices in medication use systems management, operations management and compliance with regulatory and accrediting agencies.  
Prereq: Must be enrolled in the MS in Health-System Pharmacy program, or permission of instructor.

**8170 Planning, Leading and Managing the Pharmacy Enterprise G 2**

Pharmacy 8170 serves as a capstone class for students to experience the practical role of a chief pharmacy officer or director of the pharmacy enterprise. By using various online teaching strategies, students will have an opportunity to become expert in planning, organizing, executing and analyzing the pharmacy enterprise.  
Prereq: 8160, and enrollment in MS in Pharmaceutical Sciences with Specialization in Health-System Pharmacy Administration; or permission of instructor.

**8180 Economic Evaluation of the Pharmacy Enterprise G 1**

An overview and appraisal of the economic evaluation of health care programs and services applied to health-systems pharmacy administration.  
Prereq: Enrollment in MS in Health-System Pharmacy program, or permission of instructor. Not open to students with credit for 8194.

**8190 Community-Based Pharmacy Practice G 2**

This course provides students with an understanding of community-based pharmacy practice, how to effectively engage with community-based practitioners and their sites, and foundational skills necessary to lead and to manage community-based pharmacy practice.  
Prereq: Enrollment in the MS in Pharmaceutical Sciences program with Specialization in Health-System Pharmacy Administration; or permission of instructor.

**8194 Group Studies in Pharmaceutical Sciences G 1 - 12**

Group studies topics in various fields of Pharmacy.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.

**8250 Pharmaceutical Supply Chain Principles for Health System Pharmacy G 2**

Exposure to the key stakeholders in the pharmaceutical supply chain and factors affecting its integrity. Basic concepts in drug procurement and inventory control.  
Prereq: 8150, and enrollment in the MS in Health-System Pharmacy program; or permission of instructor.

**8320 Biomedical Chemistry for Graduate Students G 5**

This course is specifically targeted for students in the pharmaceutical sciences graduate program. It is intended to provide a fundamental biochemistry background in modern molecular life sciences, enabling students to comprehend principles of drug action covered in other courses.  
Prereq: Enrollment in the College of Pharmacy graduate program or permission of instructor.

**8380 Advanced Medicinal Chemistry: Structure-based Computer-aided Molecular Design G 2**

Molecular dsqn covering molecular structure, basic quantum chem, molecular mechanics, conformational sampling, molecular docking, scoring function, molecular dynamics, free energy calculation, virtual screening, fragment-based dsqn, protein dsqn.  
Prereq: Not open to students with credit for Pharmacy 835.

**8390 Recent Advances in Pharmacognosy G 2**

Recent advances in pharmacognosy and natural products chemistry will be explored. Students will gain a more profound understanding of the contemporary scientific literature on natural products. Taught in alternate years.  
Prereq: Permission of instructor. This course is graded S/U.

**8510 Advanced Pharmacognosy G 2**

The study of research involving biosynthesis of plant constituents of pharmaceutical interest.

## 368 Pharmacy

<b>8520</b>	<b>Research Ethics</b>	<b>G P</b>	<b>1</b>
Basic concepts of integrity in the process of research. The course fulfills NIH requirement for research ethics. Repeatable to a maximum of 20 or hrs. This course is progress graded (S/U).			
<b>8700</b>	<b>Theoretical and Experimental Pharmacology</b>	<b>G</b>	<b>2</b>
Theoretical basis of pharmacologic sciences including signal transduction, dose-response curves and drug-receptor interactions.			
<b>8730</b>	<b>Contemporary Pharmacology</b>	<b>G</b>	<b>1</b>
Presentation and discussion related to current topics in pharmacology. Repeatable to a maximum of 20 or hrs.			
<b>8740</b>	<b>History of Pharmacology and Drug Discovery</b>	<b>G P</b>	<b>1</b>
Gain an understanding of the history of drugs and chemical and develop an essential breadth of knowledge in pharmacological sciences. Focus is on the historical key events, times, places and contributing scientists and provide a historical perspective essential for deeper analysis of scientific knowledge in therapeutics. Prereq: Enrollment in Graduate Program, or Rank 2 or Rank 3 in PharmD program.			
<b>8750</b>	<b>Molecular and Cellular Pharmacology I</b>	<b>G</b>	<b>2</b>
Relates to primary literature-based understanding of molecular and cellular basis of gene regulation, signal transduction, protein function and modifications, cell survival, intracellular trafficking and cytoskeletal dynamics. Importantly, the key pharmacological tools/techniques/drug actions employed in these fields will be discussed. Prereq: 8700; and enrollment in the College of Pharmacy or permission of instructor.			
<b>8760</b>	<b>Molecular and Cellular Pharmacology II</b>	<b>G</b>	<b>2</b>
This course relates to primary literature-based understanding of biochemistry and physiology of excitable tissues with an emphasis on mechanism of drug action. The content emphasizes tools/techniques/drug actions relative to ion channels and excitability, heart rhythm, muscle contraction, learning and memory, and pain. Prereq: 8700, and enrollment in the College of Pharmacy; or permission of instructor.			
<b>8880.01</b>	<b>All College Seminar: Presentation</b>	<b>G</b>	<b>½</b>
Presentation of oral and written reports dealing with recent advances in the pharmaceutical sciences. Repeatable to a maximum of 20 or hrs.			
<b>8880.02</b>	<b>All College Seminar: Participation</b>	<b>G</b>	<b>½</b>
Participation and discussion of research and recent advances in the pharmaceutical sciences. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8881.01</b>	<b>Medicinal Chemistry: Seminar Presentation</b>	<b>G</b>	<b>½</b>
Presentation of oral and written report dealing with recent advances in medicinal chemistry and pharmacognosy. Repeatable to a maximum of 20 or hrs.			
<b>8881.02</b>	<b>Medicinal Chemistry: Seminar Participation</b>	<b>G</b>	<b>½</b>
Participation in and discussion of research and recent advances in medicinal chemistry and pharmacognosy. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8882.01</b>	<b>Pharmaceutics: Seminar Presentation</b>	<b>G</b>	<b>½</b>
Presentation of oral and written reports dealing with recent advances in pharmaceutics. Repeatable to a maximum of 20 or hrs.			
<b>8882.02</b>	<b>Pharmaceutics: Seminar Participation</b>	<b>G</b>	<b>½</b>
Participation and discussion of research and recent advances in the field of pharmaceutics. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8884</b>	<b>Seminar: MS in Health-System Pharmacy</b>	<b>G</b>	<b>1</b>
Issues and new information for health system pharmacy will be presented by MS candidates, faculty and guest speakers covering therapeutic updates, project proposals and final results, and current topics. Prereq: Enrollment in MS Health-System Pharmacy program, or permission of instructor. Repeatable to a maximum of 20 or hrs.			
<b>8885.01</b>	<b>Pharmacology Seminar: Presentation</b>	<b>G</b>	<b>½</b>
Presentation of oral and written reports dealing with recent advances in pharmacology. Repeatable to a maximum of 20 or hrs.			
<b>8885.02</b>	<b>Pharmacology Seminar: Participation</b>	<b>G</b>	<b>½</b>
Participation and discussion of research and recent advances in the field of pharmacology. Repeatable to a maximum of 20 or hrs. This course is graded S/U.			
<b>8993</b>	<b>Individual Study in the Pharmaceutical Sciences</b>	<b>G</b>	<b>1 - 20</b>
Initial research in the pharmaceutical sciences, pre-candidacy. Repeatable to a maximum of 20 or hrs or 20 completions. This course is progress graded (S/U).			
<b>8999</b>	<b>Research in the Pharmaceutical Sciences</b>	<b>G</b>	<b>1 - 20</b>
Research for thesis or dissertation purposes only. Repeatable to a maximum of 20 or hrs or 20 completions. This course is progress graded (S/U).			

<b>1100</b>	<b>Introduction to Philosophy</b>	<b>U</b>	<b>3</b>
Examination of major problems, such as the nature of reality, knowledge, truth, morality, and the relation of philosophy to science and religion. GE cultures and ideas course.			
<b>1100H</b>	<b>Introduction to Philosophy</b>	<b>U</b>	<b>3</b>
Examination of major problems, such as the nature of reality, knowledge, truth, morality, and the relation of philosophy to science and religion. Prereq: Honors standing or permission of department or instructor. Not open to students with credit for 101 or 101H. GE cultures and ideas course.			
<b>1300</b>	<b>Introduction to Ethics</b>	<b>U</b>	<b>3</b>
The nature of right and wrong, good and evil; the grounds of moral choice and decision; the resolution of moral conflicts. Prereq: GE cultures and ideas course.			
<b>1300H</b>	<b>Introduction to Ethics</b>	<b>U</b>	<b>3</b>
The nature of right and wrong, good and evil; the grounds of moral choice and decision; the resolution of moral conflicts. Prereq: Honors standing or permission of instructor. Not open to students with credit for 130 or 130H. GE cultures and ideas course.			
<b>1332</b>	<b>Ethics in the Professions: Introduction to Engineering Ethics</b>	<b>U</b>	<b>3</b>
An examination of contemporary issues in engineering ethics in the context of major ethical theories. Prereq: Not open to students with credit for 1300. GE cultures and ideas course.			
<b>1338</b>	<b>Ethics in the Professions: Introduction to Computing Ethics and Effective Presentation</b>	<b>U</b>	<b>4</b>
An introduction to ethical theory with a special focus on ethical issues that arise in the computing profession. It includes student presentations and feedback to improve discussion skills. Prereq: Not open to students with credit for 1300 (130), 1332 (131.01) or 1337. GE cultures and ideas course.			
<b>1500</b>	<b>Introduction to Logic</b>	<b>U</b>	<b>3</b>
Deduction and induction; principles of clear statement and valid reasoning; fallacies; and the methods by which theories and laws are established. Prereq: Math 1060 or 1075 or equiv; or an ACT Math subscore of 22 or higher; or Math Placement Level R or better. Not open to students with credit for 1500.01, 1500.02, or 1501. GE quant reason math and logical any course.			
<b>1501</b>	<b>Introduction to Logic and Legal Reasoning</b>	<b>U</b>	<b>3</b>
An informal introduction to elementary deductive and inductive logic, concentrating on application to reasoning in legal contexts (e.g., courtroom argumentation and jury deliberation). Prereq: Math 1075 or equiv, or an ACT Math subscore of 22 or higher, or Math Placement Level R or better. Not open to students with credit for 1500 (150) or 151. GE quant reason math and logical any course.			
<b>1520</b>	<b>Probability, Data, and Decision Making</b>	<b>U</b>	<b>3</b>
How to make rational decisions when confronted by uncertainty; foundational issues and techniques pertaining to probability, selection of utilities and analysis of data relevant to decision making. Prereq: Math 1075 or equiv, or an ACT Mathematics Subscore of 22 or higher, or Math Placement Level R or better. Not open to students with credit for 153. GE data any course.			
<b>2120</b>	<b>Asian Philosophies</b>	<b>U</b>	<b>3</b>
A survey including at least three of the following philosophical systems of Asia: Hinduism, Buddhism, Jainism, Zoroastrianism, Taoism, and Confucianism. GE lit and diversity global studies course.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Groups of students are given an opportunity to pursue special topics not otherwise offered. Repeatable to a maximum of 9 or hrs or 3 completions.			
<b>2340</b>	<b>The Future of Humanity</b>	<b>U</b>	<b>3</b>
Examination of long-term ethical challenges facing humanity due to technological, environmental, and other developments. GE cultures and ideas course.			
<b>2342</b>	<b>Environmental Ethics</b>	<b>U</b>	<b>3</b>
Examination of the moral issues generated by the impact of human beings on the natural environment. Prereq: Not open to students with credit for 533.			
<b>2367</b>	<b>Contemporary Social and Moral Problems in the U.S.</b>	<b>U</b>	<b>3</b>
An intensive writing course concentrating on the analysis and evaluation of philosophical argumentation concerning contemporary social and moral problems about race, gender, class, and ethnicity. Does not count on a philosophy major or minor program. Prereq: English 1110 or 1110.02 or equiv; and soph standing or above. Not open to students with credit for 367. GE writing and comm course: level 2 and diversity soc div in the US course.			
<b>2400</b>	<b>Political and Social Philosophy</b>	<b>U</b>	<b>3</b>
Philosophical bases of social and political institutions and practices; analysis of such fundamental conceptions as rights, justice, equality, political obligation, and civil disobedience. Prereq: English 1110.xx or 1110.xxH, or equiv. Not open to students with credit for 230. GE cultures and ideas course.			

<b>2450</b>	<b>Philosophical Problems in the Arts</b>	<b>U</b>	<b>3</b>
Introduction to major philosophical issues in the arts; examination of artistic intention, representation v. abstraction, the grounds and objectives of art criticism, the import of cultural differences and their application to specific works of art. Prereq: Not open to students with credit for 240 or 240H. GE VPA course.			
<b>2455</b>	<b>Philosophy and Videogames</b>	<b>U</b>	<b>3</b>
Examination of the philosophical issues that accompany the creation, play, and critique of videogames. GE VPA and cultures and ideas course.			
<b>2458</b>	<b>Animals and Philosophy</b>	<b>U</b>	<b>3</b>
Examination of philosophical questions about the status of nonhuman animals. GE cultures and ideas course.			
<b>2465</b>	<b>Death and the Meaning of Life</b>	<b>U</b>	<b>3</b>
Explore the question of whether there is a relation between mortality and a meaningful life. GE lit course.			
<b>2470H</b>	<b>Honors Philosophy in Film</b>	<b>U</b>	<b>3</b>
An introduction to philosophical and aesthetic issues involved with film as an art and as an expressive medium. Prereq: Honors standing, or permission of instructor. GE VPA course.			
<b>2500</b>	<b>Symbolic Logic</b>	<b>U</b>	<b>3</b>
A formal presentation of the elements of modern deductive logic; decision and proof procedures in sentential logic and functional logic. Prereq: Math 1075 or equiv, or an ACT Math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 250. GE quant reason math and logical any course.			
<b>2650</b>	<b>Introduction to the Philosophy of Science</b>	<b>U</b>	<b>3</b>
A survey of the main philosophical problems relating to the natural sciences. Prereq: 3 or hrs in logic or Math above 1075, an ACT Math Subscore of 22 or higher, or Math Placement Level R or better, and 3 or hrs in natural science, or permission of instructor. Not open to students with credit for 255.			
<b>2660</b>	<b>Metaphysics, Religion, and Magic in the Scientific Revolution</b>	<b>U</b>	<b>3</b>
A philosophical examination and critical exploration of the interconnection between the natural scientific, religious and magical traditions in the emergence of the Scientific Revolution. Prereq: Not open to students with credit for 280. GE historical study course.			
<b>2670</b>	<b>Science and Religion</b>	<b>U</b>	<b>3</b>
A philosophical examination of the relationship between science and religion, concentration on issues regarding the creation of the universe and the origins of life. Prereq: Not open to students with credit for CompStd 2670 or RelStd 2670. GE cultures and ideas course. Cross-listed in RelStd.			
<b>2680</b>	<b>Scientific Controversies</b>	<b>U</b>	<b>3</b>
Modern science raises many difficult questions about the nature of the universe and our place in it. This class considers several controversies that arise within science and investigates their broader philosophical significance. How does science work in different domains and at different times, and what can science tell us about ourselves and the nature of the world? GE cultures and ideas course.			
<b>2690</b>	<b>Genes and Society</b>	<b>U</b>	<b>3</b>
This team taught, interdisciplinary course (crosslisted as MOLGEN 2690) provides science-based exposure to topics in classical and modern genetics but with an emphasis on social and ethical issues. Together we will discuss what genes are, and how they work, and how our genome influences traits and behaviors in the context of social beliefs and philosophy. Prereq: Not open to students with credit for MolGen 2690. Cross-listed in MolGen.			
<b>2850</b>	<b>Introduction to Philosophy of Religion</b>	<b>U</b>	<b>3</b>
A philosophical analysis of the nature of religion and the foundations of religious belief. GE cultures and ideas course.			
<b>3000</b>	<b>Gateway Seminar</b>	<b>U</b>	<b>3</b>
The primary purpose of the gateway seminar is to give students intensive training in reading, researching, and writing about philosophy. Topics will vary. Prereq: Philos major, or permission of instructor.			
<b>3001</b>	<b>Economy, Polity, and Community</b>	<b>U</b>	<b>3</b>
Examines how different ways of thinking about human nature shape our understanding of philosophy, politics, and economics. Prereq: Econ 2001.XX or 2002.01 or 2002.03H; and Philos 2400 or PolitSc 2400 or 2400H; and Econ 5001 or Philos 2500 or 5540 or PolitSc 4553 or 4553H; and Philos 3300; and Econ 3400 or IntStd 3400 or PolitSc 3780 or 3780H; and PolitSc 4280 or 4380. Not open to students with credit for Econ 3001 or PolitSc 3001. Cross-listed in Econ and PolitSc.			
<b>3002</b>	<b>Tradition, Progress, and Utopia</b>	<b>U</b>	<b>3</b>
Examines how different ways of thinking about social and political change shape our understanding of philosophy, politics, and economics. Prereq: Econ 2001.XX or 2002.01 or 2002.03H; and Philos 2400 or PolitSc 2400 or 2400H; and Econ 5001 or Philos 2500 or 5540 or PolitSc 4553 or 4553H; and Philos 3300; and Econ 3400 or IntStd 3400 or PolitSc 3780 or 3780H; and PolitSc 4280 or 4380. Not open to students with credit for Econ 3002 or PolitSc 3002. Cross-listed in Econ and PolitSc.			

<b>3111</b>	<b>Introduction to Jewish Philosophy</b>	<b>U</b>	<b>3</b>
A general introduction to major figures and trends in medieval, modern, and contemporary Jewish philosophy; emphasis on Philo, Saadia, Maimonides, Spinoza, Mendelssohn, and Buber. Prereq: Not open to students with credit for 321 and JewshSt 3111. GE cultures and ideas course. Cross-listed in JewshSt.			
<b>3120</b>	<b>Engaging Time: Philosophical Dimensions of Temporality</b>	<b>U</b>	<b>3</b>
This course introduces the philosophical concept of time. Topics may include: how we measure time; whether time is real or is it the result of subjective perception; God's knowledge of the future; and, the coherence of 'time-travel'. Prereq: Not open to students with credit for Hebrew 3120. GE cultures and ideas course.			
<b>3210</b>	<b>History of Ancient Philosophy</b>	<b>U</b>	<b>3</b>
Major figures and issues in Greek philosophy: presocratics, Socrates, Plato, Aristotle. Prereq: 3 or hrs in Philos, or permission of instructor. GE lit and diversity global studies course.			
<b>3220</b>	<b>History of Medieval Philosophy</b>	<b>U</b>	<b>3</b>
Major figures in medieval philosophy, including Augustine, Aquinas, Duns Scotus, and Ockham. Prereq: 3 or hrs in Philos, or permission of instructor. GE lit and diversity global studies course.			
<b>3230</b>	<b>History of 17th-Century Philosophy</b>	<b>U</b>	<b>3</b>
Major figures in European philosophy in the 17th century. Prereq: 3 or hrs in Philos, or permission of instructor. GE lit and diversity global studies course.			
<b>3240</b>	<b>History of 18th-Century Philosophy</b>	<b>U</b>	<b>3</b>
Major figures in European philosophy in the 18th century. Background in 3230 recommended. Prereq: 3 or hrs in Philos, or permission of instructor. GE lit and diversity global studies course.			
<b>3250</b>	<b>History of 19th-Century Philosophy</b>	<b>U</b>	<b>3</b>
Major figures in 19th-century philosophy. Prereq: 3 or hrs in Philos, or permission of instructor. GE lit and diversity global studies course.			
<b>3260</b>	<b>Movements in 20th-Century Philosophy</b>	<b>U</b>	<b>3</b>
Major figures or movements in twentieth-century philosophy. Prereq: 3 or hrs in Philos, or permission of instructor.			
<b>3261</b>	<b>Fundamental Concepts of Existentialism</b>	<b>U</b>	<b>3</b>
Key concepts of the movement: commitment, absurdity, freedom, and death, as expressed in the works of Nietzsche, Sartre, Camus, Kierkegaard, and others. Prereq: 3 or hrs of Philos, or permission of instructor. GE lit course.			
<b>3300</b>	<b>Moral Philosophy</b>	<b>U</b>	<b>3</b>
A rigorous examination of major issues in moral philosophy, such as the basic moral value(s); the relation between value and obligation; justification of moral judgment. Prereq: 6 or hrs of Philos course work, or enrollment in Philosophy, Politics, and Economics Major, or permission of instructor.			
<b>3310</b>	<b>Morality and the Mind</b>	<b>U</b>	<b>3</b>
An introduction to issues in moral psychology including various interactions between moral philosophy and issues in psychology and cognitive science. Prereq: 3 or hrs in Philos, or permission of instructor.			
<b>3341H</b>	<b>Ethical Conflicts in Health Care Research, Policy, and Practice</b>	<b>U</b>	<b>3</b>
An interdisciplinary approach to an analysis of central moral dilemmas in health care research, policy, and practice. Prereq: Honors standing; or Jr or Sr standing and permission of department or instructor. Not open to students with credit for 580H.			
<b>3410</b>	<b>Philosophical Problems in the Law</b>	<b>U</b>	<b>3</b>
Introduction to the nature of law and the philosophical and moral problems concerning law; justification of civil disobedience, criminal punishment, plea bargaining, and the enforcement of morality. Prereq: Not open to students with credit for 338.			
<b>3420</b>	<b>Philosophical Perspectives on Issues of Gender</b>	<b>U</b>	<b>3</b>
An examination of metaphysical, epistemological, and ethical issues surrounding sex and gender, with issues chosen to represent both theoretical and practical controversies. Prereq: 3 or hrs in Philos, or permission of instructor. GE cultures and ideas and diversity soc div in the US course.			
<b>3430</b>	<b>The Philosophy of Sex and Love</b>	<b>U</b>	<b>3</b>
This course will explore both historical and contemporary philosophical perspectives on both sex and love. Prereq: 3 or hrs in Philos, or permission of instructor.			
<b>3440</b>	<b>Theorizing Race</b>	<b>U</b>	<b>3</b>
Introduction to issues of "race," consideration of the historical emergence and development of ideas of "race" and of racist practices, along with their contemporary formations. Prereq: GE second writing course or Philos 2400, or enrollment in Philosophy, Politics, and Economics Major, or permission of instructor. Not open to students with credit for AfAmAST 3440. Cross-listed in AfAmAST.			

## 370 Philosophy

<b>3530</b>	<b>Philosophy of Logic</b>	<b>U</b>	<b>3</b>
Introduction into a variety of distinctly philosophical issues related to logic and its formal development. Presupposes a background in formal logic. Prereq: 2500 (250). Not open to students with credit for 450.			
<b>3600</b>	<b>Introduction to Philosophy of Language</b>	<b>U</b>	<b>3</b>
Survey of philosophical issues regarding the nature of linguistic representation and its role in thought and communication. Prereq: 2500 and 6 cr hrs of Philos course work, or permission of instructor.			
<b>3650</b>	<b>Philosophy of Science</b>	<b>U</b>	<b>3</b>
A rigorous introduction to general methodological issues in the philosophy of science. Prereq: 2500 and 6 cr hrs of Philos course work, or permission of instructor.			
<b>3680</b>	<b>Philosophy of Biology</b>	<b>U</b>	<b>3</b>
A survey of philosophical questions regarding the theoretical foundations and implications of research in biology. Prereq: 6 cr hrs of Philos course work, or permission of instructor.			
<b>3700</b>	<b>Introduction to Metaphysics</b>	<b>U</b>	<b>3</b>
Survey of main philosophical positions concerning the nature of reality, persons, freedom, identity, and causation. Prereq: 6 cr hrs of Philos course work, or permission of instructor.			
<b>3750</b>	<b>Introduction to Theory of Knowledge</b>	<b>U</b>	<b>3</b>
Survey of main philosophical positions concerning knowledge, justification, skepticism, and rationality. Prereq: 6 cr hrs of Philos course work, or permission of instructor.			
<b>3800</b>	<b>Introduction to Philosophy of Mind</b>	<b>U</b>	<b>3</b>
General introduction to the philosophy of mind, the mind-body problem, intentionality, and the nature of consciousness. Prereq: 6 cr hrs of Philos course work, or permission of instructor.			
<b>3810</b>	<b>Philosophy of Action</b>	<b>U</b>	<b>3</b>
Philosophical examination of the nature of human action. Topics include the nature of intention, practical rationality, issues in moral psychology, and the metaphysics of free will. Prereq: 6 cr hrs of Philos course work, or enrollment in Philosophy, Politics, and Economics Major, or permission of instructor.			
<b>3830</b>	<b>Consciousness</b>	<b>U</b>	<b>3</b>
An introduction to consciousness with a focus on the interactions between philosophy, psychology, and neuroscience. Prereq: 3 cr hrs of Philos course work, or permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in Philosophy</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research in various topics; independent study. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Undergraduate Research in Philosophy</b>	<b>U</b>	<b>1 - 3</b>
Undergraduate research in variable topics; independent study. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
A program of reading arranged for each student, with individual conferences, reports, and papers. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
A program of reading arranged for each student, with individual conferences, reports, and papers. Failure to receive a mark of S in this course is a disqualification for special honors. Prereq: Sr standing with a grade of A in at least half of the Philos courses taken and with an average of B in the remainder; permission of instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. At least 1 semester is required of candidates for the BA with distinction in Philos. Repeatable to a maximum of 9 cr hrs and 3 completions. This course is graded S/U.			
<b>5010S</b>	<b>Teaching Philosophy</b>	<b>U G</b>	<b>3</b>
Design a set of philosophy lessons and team-teach some of these lessons to secondary school students. Background checks will be required; students may be responsible for associated fees. Prereq: 6 cr hrs of Philos course work at the 2000-level or above, or Grad standing in Philos, or permission of instructor. GE service learning course.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 6</b>
Individual Studies. Students ordinarily earn from 1 to 3 cr hrs, but honors students may earn up to 6 cr hrs. Prereq: Permission of dept chairperson. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 9</b>
Group Studies. Prereq: Permission of chairperson. Repeatable to a maximum of 18 cr hrs or 6 completions.			

<b>5210</b>	<b>Studies in Ancient Philosophy</b>	<b>U G</b>	<b>3</b>
Variable content; special topics in ancient Greek philosophy, including value theory, logic, metaphysics and natural science in pre-Socratics Socrates, Plato, Aristotle the Hellenistic schools or neo-Platonism. Prereq: 3210 or 6 cr hrs at the 2000 level or above in Philos coursework, Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>5211</b>	<b>Plato</b>	<b>U G</b>	<b>3</b>
A survey of central philosophical themes in one or more Platonic dialogues. Prereq: 3210, or 6 cr hrs at the 2000 level or above in Philos coursework, or Grad standing in Philos; or permission of instructor. Not open to students with credit for 601.01.			
<b>5212</b>	<b>Aristotle</b>	<b>U G</b>	<b>3</b>
A survey of central philosophical themes in one or more Aristotelian treatises. Prereq: 3210 or 6 cr hrs at the 2000 level or above in Philos coursework, or Grad standing in Philos, or permission of instructor.			
<b>5230</b>	<b>Studies in 17th-Century Philosophy</b>	<b>U G</b>	<b>3</b>
An intensive examination of a major philosopher or philosophical problem of the period; topics vary from semester to semester. Prereq: 6 cr hrs of Philos course work at the 2000 level or above, one of which is 3210, 3220, 3230 or 3240; or Grad standing in Philos; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5240</b>	<b>Studies in 18th-Century Philosophy</b>	<b>U G</b>	<b>3</b>
An intensive examination of a major philosopher or philosophical problem of the period; topics vary from semester to semester. Prereq: 6 cr hrs of Philos course work at the 2000 level or above, one of which is 3210, 3220, 3230 or 3240; or Grad standing in Philos; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5241</b>	<b>Studies in 18th Century Philosophy: Kant</b>	<b>U G</b>	<b>3</b>
An intensive examination of one or more important themes in Kant's philosophical writings. Prereq: 3230 or 3240, and 6 cr hrs of Philos course work at the 2000 level or above; or Grad standing in Philos; or permission of instructor. Not open to students with credit for 604.01			
<b>5250</b>	<b>Studies in 19th-Century Philosophy</b>	<b>U G</b>	<b>3</b>
An intensive examination of a major philosopher or philosophical problem of the period; topics vary from semester to semester. Prereq: 3250 or 6 cr hrs of Philos course work at the 2000 level or above; or Grad standing in Philos; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5260</b>	<b>Studies in 20th-Century Philosophy</b>	<b>U G</b>	<b>3</b>
An intensive examination of one or more central movement in 20th-century philosophy; topics vary. Prereq: 6 cr hrs of Philos course work at the 2000 level or above; or Grad standing in Philos; or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>5261</b>	<b>Phenomenology and Existentialism</b>	<b>U G</b>	<b>3</b>
Early existentialist ideas of Kierkegaard and Nietzsche; Husserl's phenomenological method and critical analysis of works of philosophers such as Heidegger, Jaspers, Sartre, Beauvoir, and others. Prereq: 6 cr hrs of Philos course work at the 2000 level or above; or Grad standing; or permission of instructor.			
<b>5300</b>	<b>Advanced Moral Philosophy</b>	<b>U G</b>	<b>3</b>
An intensive examination of major issues within moral philosophy such as the foundations of morality; objectivity in ethics; morality, reason and sentiment; virtues and vices. Prereq: 3300, or 6 cr hrs in Philos at or above 3000-level; or Grad standing in Philos; or permission of instructor.			
<b>5310</b>	<b>Metaethics</b>	<b>U G</b>	<b>3</b>
This course addresses abstract questions about the nature of moral thinking - such as whether moral facts exist, how to understand the contrast between moral and purely descriptive language and beliefs, and how moral judgments can be justified at all. Prereq: 3300, or 6 cr hrs in Philos at or above 3000-level; or Grad standing in Philos; or permission of instructor.			
<b>5400</b>	<b>Advanced Political and Social Philosophy</b>	<b>U G</b>	<b>3</b>
An intensive examination of issues in political and social philosophy, including democracy, civil disobedience, anarchism, totalitarianism, and nature of the state. Prereq: 2400, or 6 cr hrs in Philos at or above 2000-level; or enrollment in Philosophy, Politics, and Economics Major; or Grad standing in Philos; or permission of instructor.			
<b>5410</b>	<b>Advanced Philosophy of Law</b>	<b>U G</b>	<b>3</b>
An examination of the nature and function of law and of such problems as the relation of law to morality and the justification of punishment. Prereq: 3410, and 6 cr hrs in Philos at or above 2000-level; or enrollment in Philosophy, Politics, and Economics Major; or Grad standing; or permission of instructor.			
<b>5420</b>	<b>Philosophical Topics in Feminist Theory</b>	<b>U G</b>	<b>3</b>
An analytical study of selected philosophical issues arising out of feminist theory, such as the nature of autonomy, or the relation between gender and knowledge. Prereq: 6 cr hrs in Philos at or above 2000-level; or Grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.			

<b>5440</b>	<b>Philosophical Perspectives on Race, Education, and Citizenship</b>	<b>U G</b>	<b>3</b>
This course allows participants to pursue philosophical questions at the intersection of race, education, and political life. These include: Does education play a very specific role in racialized patterns of benefit/detriment? What role does race play in understandings of educational policy & practice? How does race affect understandings of 'education for citizenship'? Prereq: Not open to students with credit for ESPHE 5440. Cross-listed in ESPHE.			
<b>5450</b>	<b>Advanced Aesthetic Theory</b>	<b>U G</b>	<b>3</b>
Basic issues in philosophy of art: the definition of art; meaning, truth, and representation in art; the nature and basis of criticism; the criteria of interpretation of works of art. Prereq: 6 cr hrs in Philos at or above 3000-level; or Grad standing in Philos; or permission of instructor.			
<b>5460</b>	<b>Philosophy in Literature</b>	<b>U G</b>	<b>3</b>
Philosophical problems as reflected in classic works of literature (e.g. Kafka, Sartre, Calvino, Borges, Woolf and others). Topics may include the nature of time and memory; personal identity; time travel; free will and determinism, and the nature of evil. Prereq: 6 cr hrs in Philos at or above 3000-level, or Grad standing, or permission of instructor.			
<b>5500</b>	<b>Advanced Symbolic Logic</b>	<b>U G</b>	<b>3</b>
Introduction to the metatheory of first-order logics and languages; axiomatic development of propositional and predicate logic; model theory; soundness, completeness, and Lowenheim-Skolem theorems. Prereq: 2500. Not open to students with credit for 650.			
<b>5510</b>	<b>Nonclassical Logic</b>	<b>U G</b>	<b>3</b>
Study of selected systems of nonclassical logic, such as entailment systems, modal, many-valued, epistemic deontic, imperative, erotetic, tense and free logics. Prereq: 5500. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>5530</b>	<b>Philosophy of Logic and Mathematics</b>	<b>U G</b>	<b>3</b>
Analysis of basic concepts used in logic and in philosophical claims about logic and mathematics, such as proposition, logical truth, mathematical objects, and necessity. Prereq: Not open to students with credit for 654.			
<b>5540</b>	<b>Theory of Rational Choice</b>	<b>U G</b>	<b>3</b>
Introduction to the principles and methods of the theory of rational choice with applications in the theory of knowledge, ethics, and social and political philosophy. Prereq: 2500; or enrollment in Philosophy, Politics, and Economics Major; or Grad standing in Philos; or permission of instructor.			
<b>5550</b>	<b>Advanced Logical Theory</b>	<b>U G</b>	<b>3</b>
Topics include formal arithmetic, recursive functions, Turing machines, Godel's incompleteness theorems, Church's thesis, arithmetical truth, logical paradoxes, and higher-order logic. Prereq: 2500 and 5500. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>5600</b>	<b>Advanced Philosophy of Language</b>	<b>U G</b>	<b>3</b>
Basic problems and results in the philosophy of language, concentrating on theories of reference, theories of meaning, and theories of language-use (including speech-acts, implicature). Preferable to have credit for 3600 prior to enrollment. Prereq: 2500, and 6 cr hrs in Philos at or above 3000-level; or Grad standing in Philos; or permission of instructor. Not open to students with credit for 673.			
<b>5610</b>	<b>Natural Language Metaphysics</b>	<b>U G</b>	<b>1 - 3</b>
Natural languages seem to presuppose that the world is a certain way. In many cases, the presuppositions are philosophically (or scientifically) contentious. We will explore a variety of such cases, noting the ramifications for both metaphysics and for semantics. Team-taught course with faculty member in Linguistics. Prereq: Philos 2500, and 6 cr hrs in Philos at 3000-level or above; or Ling 5001 or 5401; or Grad standing in Philos; or permission of instructor. Ling 5410 and Philos 5610 repeatable to a maximum of 6 cr hrs. Cross-listed in Ling 5410.			
<b>5650</b>	<b>Advanced Philosophy of Science</b>	<b>U G</b>	<b>3</b>
A study of the nature and structure of scientific concepts, laws, and theories; appraisal of methodologies, presuppositions, and frames of reference in science. Preferable to have credit for 3650 prior to enrollment. Prereq: 2500, and 6 cr hrs in Philos at or above 3000-level; or 2500, and Grad standing in Philos; or permission of instructor. Not open to students with credit for 655.			
<b>5700</b>	<b>Advanced Metaphysics</b>	<b>U G</b>	<b>3</b>
An intensive examination of major metaphysical problems: categories, universals, substance and process, causality and law, space and time, metaphysical presuppositions of knowledge. Preferable to have credit for 3700 prior to enrollment. Prereq: 2500, and 6 cr hrs in Philos at or above 3000-level; or Grad standing in Philos; or permission of instructor.			
<b>5750</b>	<b>Advanced Theory of Knowledge</b>	<b>U G</b>	<b>3</b>
An intensive examination of major epistemological problems: the possibility, origin, foundation, structure, methods, limits, types, and validity of knowledge. Preferable to have credit for 3750 prior to enrollment. Prereq: 2500, and 6 cr hrs in Philos at or above 3000-level; or Grad standing; or permission of instructor. Not open to students with credit for 660.			

<b>5800</b>	<b>Advanced Philosophy of Mind</b>	<b>U G</b>	<b>3</b>
Classical and contemporary approaches to the nature of mind, mind-body, other minds, intentionality, and other problems. Preferable to have credit for 3800 prior to enrollment. Prereq: 6 cr hrs in Philos at or above 3000-level; or Grad standing in Philos; or permission of instructor.			
<b>5830</b>	<b>Introduction to Cognitive Science</b>	<b>U G</b>	<b>3</b>
Cognitive science is an interdisciplinary study of the nature of human thought; psychological, philosophical, linguistic, and artificial intelligence approaches to knowledge representation. Prereq: 9 cr hrs from at least two of these areas: CSE, Ling, Philos or Psych; or permission of instructor. Not open to students with credit for CSE 5531, Ling 5612, or Psych 5612 (612). Cross-listed in CSE, Ling, and Psych.			
<b>5840</b>	<b>Advanced Philosophy of Cognitive Science</b>	<b>U G</b>	<b>3</b>
In-depth examination of the influence of results in cognitive science upon the way in which philosophers approach fundamental issues about the nature of the mind. Prereq: 6 cr hrs in Philos at or above 2000-level; or Grad standing; or permission of instructor.			
<b>5850</b>	<b>Philosophy of Religion</b>	<b>U G</b>	<b>3</b>
A study of religious concepts and problems; the idea and nature of God, of humans, their relation to the world and human destiny. Prereq: 6 cr hrs in Philos at or above 3000-level; or Grad standing; or permission of instructor. Not open to students with credit for 670.			
<b>5891</b>	<b>Proseminar in Cognitive Science</b>	<b>U G</b>	<b>2</b>
Provides an in-depth examination of cognitive science from an interdisciplinary perspective. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. Cross-listed in CSE, Ling, Psych, and SphHrng.			
<b>7080</b>	<b>Engineering Ethics</b>	<b>G</b>	<b>1</b>
Equip engineering grad students with skills for resolving moral issues that may arise in professional contexts. Includes an introduction to ethics, followed by contemporary issues in engineering ethics, such as the nature and moral status of technology; responsibility; privacy; honesty and integrity, safety and risk; environmental ethics; and the ethics of artificial intelligence. Prereq: Grad standing in ECE. This course is graded S/U.			
<b>8001</b>	<b>Graduate Training Seminar</b>	<b>G</b>	<b>1 - 3</b>
This course is designed to provide professional training for all first- and second-year graduate students that will enable them to develop the skills required for success in research, teaching and service. Prereq: Grad standing in Philos. Repeatable to a maximum of 5 cr hrs or 2 completions. This course is graded S/U.			
<b>8100</b>	<b>First-Year Seminar</b>	<b>G</b>	<b>4</b>
A typically variable introduction to advanced philosophical methodology. Prereq: First year of Grad standing. Not open to students with credit for 700.			
<b>8102</b>	<b>Seminar in East Asian Philosophy</b>	<b>G</b>	<b>3</b>
Seminar focusing on a particular thinker, school of philosophy, or set of texts from the East Asian philosophical tradition. Topics vary. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 9 cr hrs. Cross-listed in CompStd 8896 and EALL 8896.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Doctoral students may register for individual study in areas not normally covered by courses. Prereq: MA degree, or at least 30 cr hrs in Grad; and permission of dept chairperson. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>8200</b>	<b>Seminar in History of Philosophy</b>	<b>G</b>	<b>1 - 4</b>
Seminar in History of Philosophy. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>8300</b>	<b>Seminar in Value Theory</b>	<b>G</b>	<b>1 - 4</b>
Seminar in Value Theory. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>8500</b>	<b>Seminar in Logic</b>	<b>G</b>	<b>1 - 4</b>
Seminar in Logic. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>8510</b>	<b>Seminar in Topics in Logic</b>	<b>G</b>	<b>1 - 4</b>
Selected topics in logic and philosophy of logic; topics vary. Prereq: Grad standing in Philos, or permission of instructor.			
<b>8600</b>	<b>Seminar in Philosophy of Language</b>	<b>G</b>	<b>1 - 4</b>
Seminar in Philosophy of Language. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>8650</b>	<b>Seminar in Philosophy of Science</b>	<b>G</b>	<b>1 - 4</b>
Seminar in Philosophy of Science. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			

## 372 Philosophy

<b>8700 Seminar in Metaphysics</b>	<b>G</b>	<b>1 - 4</b>
Seminar in Metaphysics. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.		
<b>8750 Seminar in Theory of Knowledge</b>	<b>G</b>	<b>1 - 4</b>
Seminar in Theory of Knowledge. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.		
<b>8800 Seminar in Philosophy of Mind</b>	<b>G</b>	<b>1 - 4</b>
Selected topics in philosophy of mind; topics vary. Prereq: Grad standing in Philos, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.		
<b>8900 Placement Seminar</b>	<b>G</b>	<b>1 - 3</b>
This course helps to prepare graduate students in the penultimate or final year of their studies to seek employment, especially academic employment in philosophy departments. Prereq: Grad standing in Philos. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.		
<b>8999 Dissertation Research in Philosophy</b>	<b>G</b>	<b>1 - 9</b>
Research for dissertation purposes only. Prereq: Repeatable to a maximum of 30 cr hrs or 30 completions. This course is graded S/U.		

### Physical Medicine And Rehabilitation

<b>7999 Research in Physical Medicine and Rehabilitation</b>	<b>G</b>	<b>1 - 15</b>
Research for thesis purposes only. Prereq: Grad or Prof standing, and permission of instructor. This course is graded S/U.		

### Physical Therapy

<b>6021 Introduction to the Physical Therapy Profession</b>	<b>G</b>	<b>1</b>
Introduction to the profession of physical therapy. Information pertaining to professional development, teaching and learning, social responsibility and individual, cultural and age related variations pertaining to the practice of PT. Prereq: Enrollment in the Doctorate in Physical Therapy program.		
<b>6189 Integrated Clinical Experience</b>	<b>G</b>	<b>1</b>
Part-time clinical experience assigned at an affiliated outpatient facility in central Ohio with the goal of practicing techniques from the musculoskeletal lab and documentation. Repeatable to a maximum of 2 cr hrs.		
<b>6250 Neural Basis of Movement</b>	<b>G</b>	<b>2</b>
Introduction to sensory and motor systems, basis of the neurologic screening examination and principles of motor control theory. Prereq: Enrollment in Doctorate in Physical Therapy program.		
<b>6260 Pathology for Physical Therapists</b>	<b>G</b>	<b>2</b>
Introduction to pathology and medical management of disease and implications for the physical therapist. Prereq: Enrollment in Doctorate in Physical Therapy program.		
<b>6389 Pediatric Integrated Clinical Experience</b>	<b>G</b>	<b>½</b>
Designed to provide pediatric focused clinical experiences with direct patient/client care supervised by a licensed physical therapist at a clinical site that has been approved by and has a contract of affiliation with the Physical Therapy Division. Expectations to develop and refine problem-solving, clinical decision-making, patient care and communication skills within the pediatric setting. Prereq: Enrollment in the Doctorate in Physical Therapy program. This course is graded S/U.		
<b>6410 Principles and Procedures in Physical Therapy Practice I</b>	<b>G</b>	<b>1</b>
Introduction to basic patient handling skills and clinical measurement. Prereq: Enrollment in Doctorate in Physical Therapy program.		
<b>6415 Principles and Procedures in Physical Therapy Practice II</b>	<b>G</b>	<b>1</b>
Advances the principles and skills for patient management and measurement acquired in Principles and Procedures in Physical Therapy Practice I. Prereq: Enrollment in the Doctorate in Physical Therapy program.		
<b>6489 Acute Care Integrated Clinical Experience</b>	<b>G</b>	<b>½</b>
This course is designed to provide the student with an integrated clinical experience reflecting didactic preparation to date. This is a part time acute care clinical experience at an affiliated inpatient acute care facility with the goal of practicing techniques from the acute care components of the curriculum and documentation. Prereq: Enrollment in the Doctorate in Physical Therapy program. This course is graded S/U.		

<b>6589 Service Based Clinical Experience</b>	<b>G</b>	<b>½ - 2</b>
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In accordance with the mission and philosophy of the professional education program which is to prepare the student for entry-level competence in the practice of physical therapy, this course is designed to provide the student with a service based clinical experience reflecting didactic preparation to date. Clinical experiences with direct patient/client care are supervised by a licensed physical therapist at a clinical site that has been approved by and has a contract of affiliation with the Physical Therapy Division.  
This course is graded S/U.

<b>6689 Performance Oriented Clinical Experience</b>	<b>G</b>	<b>1</b>
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This course is designed to provide the student with individualized remediation activities to address identified clinical performance deficiencies.  
Prereq: Permission of instructor. Repeatable to a maximum of 2 cr hrs or 2 completions. This course is graded S/U.

<b>7012 Documentation and Reimbursement</b>	<b>G</b>	<b>1</b>
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Clinical decision making and professional communication through documentation and reimbursement of clinical activities, including evaluation, goal setting and prognosis.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

<b>7189 Intermediate Clinical Internship I</b>	<b>G</b>	<b>4</b>
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Full-time clinical rotation completed in an affiliated outpatient facility with the focus on patients with musculoskeletal impairments.  
Repeatable to a maximum of 8 cr hrs.

<b>7220 Musculoskeletal Diagnosis and Management I</b>	<b>G</b>	<b>4</b>
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The scientific basis for management of the client with pathology of the musculoskeletal system.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

<b>7235 Biomechanics for Physical Therapy I</b>	<b>G</b>	<b>2</b>
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Introduction the musculoskeletal structure and function, the biomechanical basis of human movement, and musculoskeletal disease and injury processes.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

<b>7245 Biomechanics for Physical Therapy II</b>	<b>G</b>	<b>1</b>
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Introduction to musculoskeletal structure and function and the biomechanical basis of human movement focus on lower extremity and gait.  
Prereq: Successful completion of all DPT program courses to date with a grade of C or better (except 8998), and in good academic standing.

<b>7250 Neurologic Basis of Rehabilitation</b>	<b>G</b>	<b>2</b>
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Analysis of normal and pathological neural systems for sensory and motor functions, mechanisms of recovery of function associated with rehabilitation, and introduction to neural development.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

<b>7289 Intermediate Clinical Internship II</b>	<b>G</b>	<b>8</b>
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Full time clinical experience rotation completed in an affiliated outpatient facility with the focus on patients with acute or neurologic impairments.

<b>7389 Advanced Pediatric Integrated Clinical Experience</b>	<b>G</b>	<b>1</b>
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Designed to provide an intensive pediatric focused integrated clinical experience for the student enrolled in the pediatric specialization. Clinical experiences are supervised by a licensed physical therapist at a clinical site that has been approved by and has a contract of affiliation with the Physical Therapy Division.  
Prereq: Enrollment in the Doctorate in Physical Therapy program. This course is graded S/U.

<b>7420 Musculoskeletal Skills Laboratory I</b>	<b>G</b>	<b>3</b>
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Clinical application and skill acquisition related to management of musculoskeletal conditions by physical therapists.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

<b>7915 Research Applications in Physical Therapy</b>	<b>G</b>	<b>1</b>
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In order for students to understand the relationship between biomedical research and the clinical practice of physical therapy, this laboratory course will immerse students in faculty-driven research. Students will be exposed to basic science, applied clinical and/or translational research within areas of faculty research in Physical Therapy.  
Prereq: Enrollment in the Doctorate in Physical Therapy program, or permission of instructor.

<b>7989 Elective Integrated Clinical Experience</b>	<b>G</b>	<b>½ - 2</b>
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This course provides the student with an integrated clinical experience reflecting didactic preparation to date. This part-time clinical education experience is assigned at an affiliated facility with the goal of practicing techniques from a specific area of practice in physical therapy in order to allow students an opportunity to advance their skills in the given area of practice.  
Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs or 2 completions. This course is graded S/U.

<b>8013 Contemporary Practice</b>	<b>G</b>	<b>1</b>
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Critical appraisal of current medical, ethical, political and legal topics impacting physical therapy practice.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

<b>8030 Topics in Pediatric Physical Therapy</b>	<b>G</b>	<b>1</b>
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Critical topics related to health care and education systems delivery in pediatric practice and the role of family and culture in the therapeutic program of the child.  
Prereq: Enrollment in the Doctorate in Physical Therapy program.

## Physical Therapy 373

<b>8050</b>	<b>Topics in Rehabilitation and Long Term Care</b>	<b>G</b>	<b>1</b>
Healthcare systems and critical topics in rehabilitation and geriatric care. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8060</b>	<b>Health Care in America and its Impact on Physical Therapy I</b>	<b>G</b>	<b>1</b>
Analysis of the healthcare system in America and how working within this system impacts the practice of Physical Therapy.			
<b>8061</b>	<b>Director's Seminar: PT as a Profession</b>	<b>G</b>	<b>1</b>
Issues pertaining to leadership and professional responsibility in physical therapy as part of the healthcare system are discussed in a seminar format. Students will meet weekly for discussion with faculty and expert panels. Enrollment is limited to 3rd year students in the doctorate of physical therapy program.			
<b>8065S</b>	<b>Service Learning in Physical Therapy</b>	<b>G</b>	<b>½ - 2</b>
This course was designed to provide students with service learning opportunities in physical therapy. Repeatable to a maximum of 16 or hrs or 8 completions. This course is graded S/U.			
<b>8070</b>	<b>Management: Administrative Skills</b>	<b>G</b>	<b>3</b>
Administrative skills for the management of PT practice in various settings, introduce basic principles of administration and management that are applicable to PT practice. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8071</b>	<b>Management II: Administrative Skills</b>	<b>G</b>	<b>2</b>
Administrative skills for the management of PT practice in various settings, introduce basic principles of administration and management that are applicable to PT practices. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8189</b>	<b>Terminal Clinical Internship I</b>	<b>G</b>	<b>8</b>
Develop entry level competence in the clinic with patients of various diagnoses for examination, interventions, diagnosis, development of comprehensive plan of care, goal setting, documentation, consultation, delegation, and communication.			
<b>8193</b>	<b>Individual Studies in Physical Therapy</b>	<b>G</b>	<b>1 - 3</b>
Graduate study of a selected topic. Prereq: Permission of instructor. Repeatable to a maximum of 9 or hrs or 9 completions. This course is graded S/U.			
<b>8210</b>	<b>Musculoskeletal Diagnosis and Management II</b>	<b>G</b>	<b>6</b>
Region-specific application of the knowledge acquired in Musculoskeletal Diagnosis and Management I, gait analysis, and an introduction to acute care, integumentary system management, and oncology. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8230</b>	<b>Clinical Applications in Pediatrics</b>	<b>G</b>	<b>3</b>
Physical Therapy principles of examination, evaluation, diagnosis, prognosis and intervention with children. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8250</b>	<b>Adult Neurologic Rehabilitation</b>	<b>G</b>	<b>5</b>
Analysis of body function and structure, activity, and participation levels associated with injury to the nervous system. Evidence and rationale for examination, and interventions for adult neurologic rehabilitation. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8270</b>	<b>Geriatric Management</b>	<b>G</b>	<b>2</b>
Critical issues in the management of geriatric clients. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8272</b>	<b>Cardiopulmonary Rehabilitation</b>	<b>G</b>	<b>2</b>
Evidence and rationale for examination, evaluation, and interventions for prevention of cardiovascular disease and treatment of common cardiopulmonary system disorders. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8274</b>	<b>Integumentary Systems and Rehabilitation</b>	<b>G</b>	<b>2</b>
Analysis of body function and structure, activity, and participation levels associated with the injury to the integumentary system. Evidence and rationale, and interventions for those with disorders related to the integumentary system. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8276</b>	<b>Adaptive Equipment and Community Reintegration</b>	<b>G</b>	<b>2</b>
Analysis of the use of adaptive equipment such as orthotics and wheelchairs to augment rehabilitation. Evidence and rationale for the performance of functional capacity evaluations for community reintegration. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8289</b>	<b>Terminal Clinical Internship II</b>	<b>G</b>	<b>8</b>
Develop entry level competence in the clinic with patients of various diagnoses for examination, interventions, diagnosis, development of comprehensive plan of care, goal setting, documentation, consultation, delegation, and communication.			
<b>8410</b>	<b>Musculoskeletal Skills Laboratory II</b>	<b>G</b>	<b>3</b>
Application of the knowledge and skills acquired in Musculoskeletal Diagnosis and Management I to specific regions of the musculoskeletal system, gait analysis, acute care, oncology, and wound care. Prereq: Enrollment in the Doctorate in Physical Therapy program.			

<b>8430</b>	<b>Pediatric Laboratory</b>	<b>G</b>	<b>1</b>
Applications and methods used in evaluation, diagnosis and intervention including neurological, musculoskeletal, cardiopulmonary and integumentary systems in children. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8450</b>	<b>Adult Neurologic Laboratory</b>	<b>G</b>	<b>3</b>
Clinical decision making and techniques for examination, evaluation, and interventions for adult neurologic physical therapy. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8474</b>	<b>Integumentary and Community Reintegration Laboratory</b>	<b>G</b>	<b>3</b>
Clinical decision making and techniques for examination, evaluation, and interventions for those with disorders related to the integumentary system, adaptive equipment and community reintegration. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8610</b>	<b>Advanced Orthopedic Physical Therapy</b>	<b>G</b>	<b>1</b>
Critical analysis of the current literature and the application of advanced skills related to the orthopedic patient with an emphasis manual therapy techniques and evidence-based interventions. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8612</b>	<b>Advanced Sports Physical Therapy</b>	<b>G</b>	<b>1</b>
Introduction to Sports Physical Therapy concepts with emphasis on prevention, acute injury management, differential diagnosis, sports-specific rehabilitation and wellness. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8620</b>	<b>Entrepreneurial Leadership in PT</b>	<b>G</b>	<b>1</b>
Develop leadership skills and integrate leadership theory in running a physical therapy private practice. This seminar progresses the learner from basic administrative and supervisory principles and theory to the application of higher level skills. Prereq: Must be enrolled in Physical Therapy, or permission of instructor. This course is graded S/U.			
<b>8625</b>	<b>Private Practice Management In PT</b>	<b>G</b>	<b>1</b>
Develop leadership skills and integrate leadership theory in running a physical therapy private practice. This seminar progresses the learner from basic administrative and supervisory principles and theory to the application of higher level skills. Prereq: Enrollment in Physical Therapy, or permission of instructor. This course is graded S/U.			
<b>8630</b>	<b>Clinical Science in Pediatrics</b>	<b>G</b>	<b>2</b>
Typical and atypical development including the effects of disease and damage to the nervous, musculoskeletal, cardiopulmonary and integumentary systems in pediatrics. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8635</b>	<b>Advanced Pediatric Elective</b>	<b>G</b>	<b>1</b>
To enhance clinical knowledge and skills to facilitate best practice in pediatric care settings. The course is designed to give students exposure to the diversity of pediatric care including clinical decision making, and multidisciplinary team care. Students will be provided the opportunity to learn various assessment skills, develop appropriate plans of care, expand critical thinking. Prereq: Enrollment in the Doctorate in Physical Therapy program, or permission of instructor.			
<b>8640</b>	<b>Complex Scenarios in Physical Therapy</b>	<b>G</b>	<b>1</b>
Critical issues in managing complex scenarios in physical therapy. Repeatable to a maximum of 2 or hrs.			
<b>8645</b>	<b>Advanced Acute Care Practice</b>	<b>G</b>	<b>1</b>
This course enhances knowledge and skills to facilitate best practice and early mobilization in the acute care and ICU settings. It gives students exposure to the diversity of acute care including integrated clinical decision making, pathophysiology, respiratory, electrocardiograms, nutrition, and technology as part of a multidisciplinary team. Simulated experiences are included. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8650</b>	<b>Advanced Neurologic Rehabilitation</b>	<b>G</b>	<b>1</b>
Critical analysis of the current literature and the application of advanced skills related to the neurologic patient with an emphasis on evidence-based assessment. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8670</b>	<b>Imaging in Physical Therapy Practice</b>	<b>G</b>	<b>2</b>
Develop an understanding of the basic principles and interpretation of musculoskeletal and neuromuscular imaging. The course will focus on the application of radiographic, CT and MRI images into physical therapy practice. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8674</b>	<b>Advanced Therapeutic Interventions and Progressions</b>	<b>G</b>	<b>1</b>
Case based analysis, skill acquisition, and patient-centered clinical interventions. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8676</b>	<b>Differential Diagnosis for Physical Therapists</b>	<b>G</b>	<b>4</b>
Clinical decision making related to systemic disease that can present as neuromuscular or musculoskeletal conditions. Related literature will be utilized to explore systemic origins of disorders related to PT practice. Prereq: Enrollment in the Doctorate in Physical Therapy program.			

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<b>8677</b>	<b>Differential Diagnosis for Physical Therapists II</b>	<b>G</b>	<b>2</b>
Clinical decision making related to systemic disease that can present as neuromuscular or musculoskeletal conditions. Case studies and related literature will be used to explore systemic origins of musculoskeletal or neuromuscular signs and symptoms. Prereq: Enrollment in the Doctorate in Physical Therapy program.			
<b>8680</b>	<b>Experimental Methods in Biomechanics</b>	<b>G</b>	<b>1½</b>
The purpose of this Experimental Methods in Biomechanics course is to introduce you to the wide variety of equipment that is used to make biomechanical measurements in clinical and research settings. We will discuss the technology/theory that was used to develop each measurement technique, how it is typically used, and its advantages and limitations.			
<b>8989</b>	<b>Capstone Practicum Experience</b>	<b>G</b>	<b>4</b>
Full-time individualized experience focusing on an aspect of physical therapy such as specialty clinical practice, administration or management, teaching, research, service or advocacy. It must include the development of a related project. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.			
<b>8998</b>	<b>Research Practicum</b>	<b>G</b>	<b>1 - 9</b>
Experience within a faculty members research laboratory. Includes exposure to and practice in all aspects of the research process. Repeatable to a maximum of 21 cr hrs or 12 completions. This course is graded S/U.			
<b>8999</b>	<b>Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research Thesis. Repeatable to a maximum of 45 cr hrs or 8 completions. This course is graded S/U.			

### Physics

<b>1103</b>	<b>World of Energy: Forces, Electricity, Magnetism, Machines</b>	<b>U</b>	<b>3</b>
An examination of the physical concepts related to energy, including force, electricity, magnetism, and motors. Uses the hands-on discovery mode of instruction. Intended for non-science majors. Prereq: Not open to students with credit for 103. GE nat sci phys course. NS Admis Cond course.			
<b>1104</b>	<b>World of Energy: Light, Thermodynamics, Energy Sources</b>	<b>U</b>	<b>3</b>
An examination of the various forms of energy and energy production with its personal and global impact. Uses the hands-on discovery mode of instruction. Intended for non-science majors. Prereq: Not open to students with credit for 104. GE nat sci phys course. NS Admis Cond course.			
<b>1106.01</b>	<b>Physics by Inquiry: Properties of Matter, Heat and Temperature, and Forces and Motion</b>	<b>U</b>	<b>5</b>
Investigation of the properties of matter, motion and thermodynamics using the inquiry technique. Intended for non-science majors. Prereq: Not open to students with credit for Physics 106 and 107. GE nat sci phys course. NS Admis Cond course.			
<b>1107.01</b>	<b>Physics by Inquiry: Circuits, Light and Optics, and Astronomy</b>	<b>U</b>	<b>5</b>
Investigation of the properties of electricity and circuits, light, optics with applications to real-world phenomena such as astronomy using the inquiry technique. Intended for non-science majors. Prereq: Not open to students with credit for 107 and 108. GE nat sci phys course. NS Admis Cond course.			
<b>1110</b>	<b>The Physics of Sports</b>	<b>U</b>	<b>3</b>
Examines the physics of motion set in the context of sports. Prereq: Math 1050 (75) or equiv. Not open to students with credit for 110. GE nat sci phys course. NS Admis Cond course.			
<b>1200</b>	<b>Mechanics, Kinematics, Fluids, Waves</b>	<b>U</b>	<b>5</b>
Algebra-based introduction to classical physics: Newton's laws, fluids, waves. Prereq: A grade of C- or above in Math 1148 (148), or Math Placement Level M. Not open to students with credit for 111. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1201</b>	<b>E&amp;M, Optics, Modern Physics</b>	<b>U</b>	<b>5</b>
Algebra-based introduction to electricity and magnetism, simple optics, overview of modern physics including special relativity and quantum mechanics. Prereq: 1200 (111). Not open to students with credit for 112. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1210</b>	<b>Bridging from 111 to equivalent of 1200: Fluids, Waves</b>	<b>U</b>	<b>2</b>
Algebra-based introduction to classical physics: fluids and waves; for students having credit for Physics 111 needing equivalent of credit for Physics 1200. Prereq: 111. Not open to students with credit for 1200 (113). This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			

<b>1211</b>	<b>Bridging from 112 to equivalent of 1201: Optics, Modern Physics</b>	<b>U</b>	<b>2</b>
Algebra-based introduction to classical physics: additional optics and modern physics; for students having credit for Physics 112 needing equivalent of credit for Physics 1201. Prereq: 112. Prereq or concur: 1210. Not open to students with credit for 1201 (113). This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1231</b>	<b>Physics for Engineering Technology: Electricity and Magnetism</b>	<b>U</b>	<b>3</b>
Calculus-based introduction to electricity and magnetism, for students in Engineering Technology. Prereq: 1250, 1250H, or 1260; and Math 1141, 1151, or 1154 or above; or permission of instructor. Concur: Math 1152, 1158, 1161, 1172, 1181H, or 4181H. Not open to students with credit for 1251. This course is available for EM credit. GE nat sci phys course.			
<b>1240</b>	<b>Bridging from 131 to equivalent of 1250: Thermo, Waves, Fluids</b>	<b>U</b>	<b>2</b>
Calculus-based introduction to classical physics: fluids, thermodynamics, waves; for students having credit for Physics 131 needing equivalent of credit for Physics 1250. Prereq: 131. Not open to students with credit for 1250 (133). This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1241</b>	<b>Bridging from 132 to equivalent of 1251: Optics, Modern Physics</b>	<b>U</b>	<b>2</b>
Calculus-based introduction to simple optics, modern physics including special relativity and quantum mechanics; for students having credit for Physics 132 needing equivalent of credit for Physics 1251. Prereq: 132. Prereq or concur: 1240. Not open to students with credit for 1251 (133). This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1250</b>	<b>Mechanics, Work and Energy, Thermal Physics</b>	<b>U</b>	<b>5</b>
Calculus-based introduction to classical physics: Newton's laws, work and energy, fluids, thermodynamics; for students in physical sciences, mathematics, and engineering. Prereq or concur: Math 1141, 1151, 1156, 1161, 1181H, or 4181H. This course is available for EM credit. GE nat sci phys course.			
<b>1250H</b>	<b>Honors Physics: Mechanics and Conservation Laws; Special Relativity</b>	<b>U</b>	<b>5</b>
In depth study of classical mechanics including Newton's laws, conservation laws, and introduction to special relativity. Prereq: Honors standing, or permission of instructor. Concur: Math 1151 (152), 1161 (161), 1181H (161H), or 4181H (191H) or above. Not open to students with credit for 131. GE nat sci phys course. NS Admis Cond course.			
<b>1251</b>	<b>E&amp;M, Waves, Optics, Modern Physics</b>	<b>U</b>	<b>5</b>
Calculus-based introduction to electricity and magnetism, waves, simple optics, and quantum mechanics; for students in physical sciences, mathematics, engineering. Prereq: 1250, 1250H, or 1260; and Math 1141 or 1151 or above; or permission of instructor. Concur: Math 1152, 1161, 1172, 1181H, or 4181H. This course is available for EM credit. GE nat sci phys course.			
<b>1251H</b>	<b>Honors Physics: Electricity and Magnetism; Thermal Physics, Waves, and Quantum Physics</b>	<b>U</b>	<b>5</b>
In depth introduction to: electricity and magnetism including Maxwell's equations, thermodynamics, quantum mechanics. Prereq: Honors standing, and 1250H and Math 1151 or above; or permission of instructor. Concur: Math 1152, 1161, 1172, 1181H, or 4181H or above. Not open to students with credit for 132. GE nat sci phys course. NS Admis Cond course.			
<b>1260</b>	<b>FEH Physics: Mechanics, Thermal Physics, Waves</b>	<b>U</b>	<b>5</b>
Calculus-based introduction to classical physics: Newton's laws, fluids, thermodynamics, waves. Emphasizes group work; for students in Fundamentals of Engineering Honors. Prereq: Honors standing in Engineering, and 1 entrance unit of Physics or Chem. Concur: Math 1151 (152), 1161 (161), 1181H (161H), or 4181H (191H), or above. Not open to students with credit for 131. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.			
<b>1261</b>	<b>FEH Physics: E&amp;M, Optics, Modern Physics</b>	<b>U</b>	<b>5</b>
Calculus-based introduction to electricity and magnetism, simple optics, modern physics including special relativity and quantum mechanics. Emphasizes group work; for students in Fundamentals of Engineering Honors. Prereq: 1260 (131) and Math 1151 (152) or above, or permission of instructor. Concur: Math 1152 (153), 1161, 1172, 1181H, or 4181H. Not open to students with credit for 132. GE nat sci phys course. NS Admis Cond course.			
<b>2050.01</b>	<b>Polaris Mentoring Program I</b>	<b>U</b>	<b>1</b>
The Polaris Mentorship Class will teach students about issues surrounding diversity and inclusion in STEM, provide time to meet with a near-peer mentor, and introduce students to Physics/Astronomy research at OSU. Prereq: Enrollment in Astronomy & Astrophysics major, Engineering Physics major, Physics major, or University Exploration program; or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is progress graded (S/U).			
<b>2050.02</b>	<b>Polaris Mentoring Program II</b>	<b>U</b>	<b>1</b>
The Polaris Mentorship Class will teach students about issues surrounding diversity and inclusion in STEM, provide time to meet with a near-peer mentor, and introduce students to Physics/Astronomy research at OSU. This is the second and last course of the program. Prereq: 2050.01, or permission of instructor. This course is graded S/U.			



<b>2095</b>	<b>Introductory Physics Seminar</b>	<b>U</b>	<b>1</b>
Introduction to departmental research programs and to selected topics of interest in contemporary physics. Prereq: 1251 (132), 1251H (132H), or 1261. Not open to students with credit for 295. This course is graded S/U.			
<b>2193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
Designed to give a properly qualified student opportunity for independent reading, study, or laboratory work in a specialized field of interest. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs or 5 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs or 4 completions.			
<b>2300</b>	<b>Intermediate Mechanics I</b>	<b>U</b>	<b>4</b>
Vectors and kinematics; foundations of Newtonian mechanics; momentum, work, and energy; conservative and nonconservative forces; potentials; angular momentum; rotation about a fixed axis; rigid body motion; noninertial systems and fictitious forces. Prereq: A grade of C+ or above in 1251, 1251H, or 1261. Concur: Math 2153, 2162.01, 2162.02, 2173, 2182H, or 4182H.			
<b>2301</b>	<b>Intermediate Mechanics II</b>	<b>U</b>	<b>4</b>
The special theory of relativity; relativistic kinematics; relativistic momentum and energy. Introduction to quantum systems; photons; the Bohr atom; matter waves. Prereq: Math 2153 or 2173 (254) or above, and a grade of C+ or above in 2300 (261). Not open to students with credit for 262 or 263.			
<b>2367</b>	<b>Uses of Science in Solving Problems of Society</b>	<b>U</b>	<b>3</b>
Energy, environment, and the arms race are examined using the methods of science; focuses on interaction of science and technology; and social and ethical implications of choices. Prereq: Math Placement S or higher; 1 5-hr 100-level or 1000-level course in either Astron, BioSci, Chem, GeolSci, or Physics; first writing course or equiv. Not open to students with credit for 367. GE writing and comm course: level 2 and nat sci phys course. NS Admis Cond course.			
<b>2998</b>	<b>Undergraduate Research in Physics</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research or creative activities in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs or 4 completions.			
<b>3201H</b>	<b>Honors Holography</b>	<b>U</b>	<b>3</b>
The basic technique of 3D image making; construction of a diode laser and use of this device to make holograms. Prereq: Honors standing, or permission of dept or instructor. Not open to students with credit for Art 3201H. Repeatable to a maximum of 12 or hrs. GE VPA course. Cross-listed in Art.			
<b>3470</b>	<b>Optics</b>	<b>U</b>	<b>3</b>
Introduces students to the fundamentals of modern optics. Topics will include Maxwell's equations, reflection & refraction, interference & diffraction, lasers and optical imaging. Prereq: 1251 (132), 1251H (132H), or 1261. Not open to students with credit for 570.			
<b>3700</b>	<b>Experimental Physics Instrumentation and Data Analysis Lab</b>	<b>U</b>	<b>3</b>
Construction, simulation and statistical analysis of data from advanced experiments in nuclear processes. Introduction to advanced instrumentation and computer controlled data acquisition. Computer programming is required. Prereq: 1251, 1251H, or 1261; and CSE 1222, 1223, Engr 1281H, or Astron 1221. GE data analysis course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 5</b>
Designed to give a properly qualified student opportunity for independent reading, study, or laboratory work in a specialized field of interest. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.			
<b>4700</b>	<b>Introductory Electronics for Physicists</b>	<b>U</b>	<b>3</b>
Intermediate level introduction to electronic circuits, devices, and instrumentation with emphasis on laboratory experience. Prereq: 1251 (132), 1251H (132H), or 1261. Not open to students with credit for 517.			
<b>4998</b>	<b>Undergraduate Research in Physics</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research or creative activities in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.			
<b>4998H</b>	<b>Honors Undergraduate Research in Physics</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research or creative activities in various topics; no thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.			
<b>4999</b>	<b>Thesis Undergraduate Research in Physics</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research or creative activities in various topics; culminating in a thesis. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.			

<b>4999H</b>	<b>Honors Thesis Undergraduate Research in Physics</b>	<b>U</b>	<b>1 - 5</b>
Undergraduate research or creative activities in various topics; culminating in a thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions.			
<b>5100</b>	<b>Physics for In-Service Teachers</b>	<b>U G</b>	<b>1 - 10</b>
Designed to deepen teachers' understanding of basic physical concepts and methods of treatment of selected topics, includes lectures, discussions, demonstrations, and individualized lab work. Intended for secondary school science teachers. Prereq: 10 or hrs in Physics, and teaching experience, and permission of instructor. Repeatable to a maximum of 20 or hrs or 20 completions.			
<b>5300</b>	<b>Theoretical Mechanics</b>	<b>U G</b>	<b>4</b>
Development of Lagrangian mechanics, inertia and stress tensors, rigid body rotations and introduction to the mechanics of continuous media. Prereq: A grade of C+ or above in 2301 (262), and a grade of C+ or above in Math 2174 (415) or 2568 (568). Not open to students with credit for 664.			
<b>5400</b>	<b>Intermediate Electricity and Magnetism</b>	<b>U G</b>	<b>4</b>
Introduction to the description of electrostatic fields; dielectrics; boundary-value problems; magnetic fields of steady currents; induction; Maxwell's equations; plane waves. Prereq: A grade of C+ or above in 2301 (263), and Math 2174, 2415 (415), 2255 (255), or 5520H (521H); or permission of instructor. Not open to students with credit for 5400H, 555, or 656.			
<b>5400H</b>	<b>Honors Intermediate Electricity and Magnetism I</b>	<b>U G</b>	<b>4</b>
Advanced treatment of electrostatic fields; dielectrics; boundary-value problems; magnetic fields of steady currents; induction; Maxwell's equations; plane waves. Prereq: Honors standing, Math 2174, 2415 (415), 2255 (255), or 5520H (521H), and a grade of C+ or above in Physics 2301 (263); or permission of instructor. Not open to students with credit for 5400, 555, or 656.			
<b>5401H</b>	<b>Honors Advanced Electricity and Magnetism 2</b>	<b>U G</b>	<b>4</b>
Plane waves, plane waves in matter; physical optics; coherence, interference, diffraction, and dispersion. Prereq: Honors standing or permission of instructor; (B+ or better in 5400) or (C+ or better in 5400H) or (B+ or better in 555). Not open to students with credit for 656 or 657.			
<b>5500</b>	<b>Quantum Mechanics</b>	<b>U G</b>	<b>4</b>
Introduction to quantum mechanics, including its historical background, the Schrodinger equation, solutions of one-dimensional scattering and bound state problems. Prereq: A grade of C+ or above in 2301 (263), and Math 2174, 2415 (415), 2255 (255) or 5520H (521H); or permission of instructor. Not open to students with credit for 5500H, 631, or 632.			
<b>5500H</b>	<b>Honors Quantum Mechanics I</b>	<b>U G</b>	<b>4</b>
Advanced treatment of quantum mechanics, including its historical background, the Schrodinger equation, solutions of one-dimensional scattering and bound state problems. Uses Dirac notation. Prereq: Honors status, a grade of B or above in 2301, and a grade of B- or above in Math 2174, 2415, 2255 or 5520H; or permission of instructor. Not open to students with credit for 5500.			
<b>5501</b>	<b>Quantum Mechanics II</b>	<b>U G</b>	<b>4</b>
Harmonic oscillator, time-independent and time-dependent perturbation theory, addition of angular momenta, fine and hyperfine structure of hydrogen, identical particles, periodic systems, modern physics applications of quantum mechanics. Prereq: 5500, and Math 2174, 2415, 2255, or 5520H; or permission of instructor. Not open to students with credit for 5501H or 633.			
<b>5501H</b>	<b>Honors Quantum Mechanics II</b>	<b>U G</b>	<b>4</b>
The Schrodinger equation in three dimensions, angular momentum, the hydrogen atom; time-independent perturbation theory, time-dependent perturbation theory, scattering theory and the Born approximation, multi-electron atoms. Prereq: Honors status, or permission of instructor; and B+ or above in 5500, or B- or above in 5500H. Not open to students with credit for 5501.			
<b>5600</b>	<b>Statistical Mechanics</b>	<b>U G</b>	<b>4</b>
Thermodynamics and statistical mechanics; applications to noninteracting classical and quantum systems. Interacting systems, special states of matter, critical phenomena and phase transitions. Prereq: 5500; and Math 2415, 2255, 2174, or 5520H; or permission of instructor.			
<b>5700</b>	<b>Advanced Physics Laboratory</b>	<b>U G</b>	<b>3</b>
Lab course for physics majors. Three advanced experiments from a variety of physics disciplines are carried out. Emphasis is on experimental techniques, analysis of collected data, and formal presentation of experimental results. Prereq: 2301 (263); and 3700 (416); and 5400 (555) or 5400H; and 5500 (631) or 5500H. Not open to students with credit for 616.			
<b>5710</b>	<b>Advanced Engineering Physics Laboratory</b>	<b>U G</b>	<b>3</b>
Lab course for eng physics majors. Experiments in optics, materials, and nuclear physics are carried out in a team approach, emphasizing DAQ methods and experimental design, analysis of collected data, and formal presentation of experimental results. Prereq: 3700 (416) and 2301 (263), and 5400 (555) or 5400H, and 5500 (631) or 5500H. Not open to students with credit for 616.			

## 376 Physics

<b>5800</b>	<b>Engineering Physics Design I</b>	<b>U G</b>	<b>3</b>
Presents fundamentals of engineering-physics design and leads to skills development relevant to a specific design proposal. Technical communication skills, both written and oral, are employed throughout. Prereq: 2301 (263) and a Second Writing course, and Sr standing in Engineering Physics.			
<b>5801</b>	<b>Engineering Physics Design II</b>	<b>U G</b>	<b>3</b>
Continues training in engineering-physics design. Preliminary designs are refined and prototypes are fabricated and tested. Technical communication skills, both written and oral, are employed throughout. Prereq: 5800, and Sr standing in Engineering Physics.			
<b>6201</b>	<b>Grad Holography I</b>	<b>G</b>	<b>3</b>
Introduction to the theory and basic technique of 3D image making. Students will construct a diode laser and use it to make holograms.. For grad students in the grad specialization "Analysis of Material Culture". Prereq: Grad standing.			
<b>6780</b>	<b>Special Topics Seminar</b>	<b>G</b>	<b>1</b>
A survey of current research problems in physics. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>6802</b>	<b>Topics in Elementary Particle Physics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in physics. Elementary Particle Physics. Prereq: 5501 or grad standing or permission of instructor.			
<b>6804</b>	<b>Topics in Atomic and Molecular Physics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in physics. Atomic and Molecular Physics. Prereq: 5501 or grad standing or permission of instructor.			
<b>6805</b>	<b>Topics in Nuclear Physics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in physics. Nuclear Physics. Prereq: 5501 or grad standing or permission of instructor.			
<b>6806</b>	<b>Topics in Condensed Matter Physics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in physics. Condensed Matter Physics. Prereq: 5501 or grad standing or permission of instructor.			
<b>6809</b>	<b>Topics in Biophysics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in Biophysics. Prereq: 5501 or grad standing or permission of instructor.			
<b>6810</b>	<b>Topics in Computational Physics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in Computational Physics. Prereq: 5501 or grad standing or permission of instructor.			
<b>6820</b>	<b>Special Topics</b>	<b>G</b>	<b>4</b>
Experimental and theoretical aspects of areas of current interest in physics. Special Topics. Prereq: Prereq: 5501 or grad standing. Repeatable to a maximum of 24 cr hrs.			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 6</b>
Designed to give a properly qualified student opportunity for independent reading, study, or laboratory work in a specialized field of interest. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 6 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 5</b>
Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 6 completions.			
<b>7401</b>	<b>Electromagnetic Field Theory</b>	<b>G</b>	<b>3</b>
Electric and magnetic fields in material media, Maxwell's equations, electromagnetic waves, radiation by simple systems and by moving charges. Special theory of relativity. Prereq: 5401 and 7701, or permission of instructor.			
<b>7501</b>	<b>Quantum Mechanics 1</b>	<b>G</b>	<b>3</b>
Postulates and Schroedinger eq., linear vector spaces, path-integral formulation; symmetry, orbital angular momentum, central potentials, spin angular momentum. Prereq: 5501 or equivalent, or permission of instructor.			
<b>7502</b>	<b>Quantum Mechanics 2</b>	<b>G</b>	<b>3</b>
Variational method; perturbation theory, semiclassical treatment of electromagnetic radiation, quantized electromagnetic radiation, scattering theory; density matrix; Dirac equation. Prereq: 7501.			
<b>7601</b>	<b>Classical and Statistical Physics I</b>	<b>G</b>	<b>3</b>
Lagrangian dynamics, variational principles, Hamilton's equations, canonical transformations, symmetries and conservation laws. Introduction to statistical physics; fundamental postulates. Prereq: 5300 or grad standing in Physics or permission of instructor.			

<b>7602</b>	<b>Classical and Statistical Physics II</b>	<b>G</b>	<b>3</b>
Entropy, therm. potentials and changes of phase; microscopic expression for entropy and basis of classical ensemble theory. Canonical and grand ensembles; Quantum statistical mechanics. Prereq: 5600 or equiv. or 7601.			
<b>7603</b>	<b>Advanced Statistical Physics</b>	<b>G</b>	<b>3</b>
Interacting systems; Ising and Heisenberg models of magnetism, theory of dense gases and liquids, phase transitions and critical phenomena; non-equilibrium statistical physics, Boltzmann equation. Prereq: 7502 and 7602, or permission of instructor.			
<b>7701</b>	<b>Analytic and Numeric Methods of Physics</b>	<b>G</b>	<b>3</b>
Analytical and numeric boundary value problems, complex analysis, Fourier series, Legendre polynomials, spherical harmonics, and Bessel functions. Prereq: grad standing in Physics or permission of instructor.			
<b>7891</b>	<b>Departmental Seminar or Workshop</b>	<b>G</b>	<b>1</b>
Departmental Seminar or Workshop Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>7998</b>	<b>Graduate Research</b>	<b>G</b>	<b>1 - 10</b>
Laboratory and/or theoretical research on an individual basis on topics of current interest. Prereq: 5700, or equiv, and permission of instructor. Repeatable to a maximum of 36 cr hrs or 6 completions. This course is graded S/U.			
<b>8802.01</b>	<b>Topics in Elementary Particle Physics 1</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Elementary Particle Physics. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8802.02</b>	<b>Topics in Elementary Particle Physics 2</b>	<b>G</b>	<b>3</b>
A (continued) systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Elementary Particle Physics. Prereq: 8802.01 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8803.01</b>	<b>Topics in Astroparticle Physics 1</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Astroparticle Physics. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8804.01</b>	<b>Topics in Atomic and Molecular Physics 1</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Atomic and Molecular Physics. Prereq: 7501, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8805.01</b>	<b>Topics in Nuclear Physics 1</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Nuclear Physics. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8806.01</b>	<b>Topics in Condensed Matter Physics 1</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Condensed Matter Physics. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8806.02</b>	<b>Topics in Condensed Matter Physics 2</b>	<b>G</b>	<b>3</b>
A (continued) systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Condensed Matter Physics. Prereq: 8806.01 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8808.01</b>	<b>Topics in the Theory of Quantized Fields I</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Theory of Quantized Fields. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8808.02</b>	<b>Topics in the Theory of Quantized Fields II</b>	<b>G</b>	<b>3</b>
A (continued) systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Theory of Quantized Fields. Prereq: 8808.01 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8809.01</b>	<b>Topics in Biophysics</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each semester. Biophysics. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8820</b>	<b>Special Topics</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in physics; topics will be announced each quarter. Special Topics. Prereq: 7501 or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>8999</b>	<b>Research in Physics</b>	<b>G</b>	<b>1 - 12</b>
Research for thesis or dissertation purposes only. Au, Sp, Sum Semesters. Prereq: Permission of Instructor. Repeatable. This course is graded S/U.			

## Physiology and Cell Biology 377

<b>3101</b>	<b>Human Physiology I</b>	<b>U</b>	<b>3</b>
First of a two-semester sequence. In this course the following areas of physiology are covered: cell membrane, neurophysiology, muscle and gastrointestinal physiology. Au Sem. Prereq: Two semesters of Chem.			
<b>3102</b>	<b>Human Physiology II</b>	<b>U</b>	<b>3</b>
Second of a two-semester sequence. In this course the following areas of physiology are covered: cardiovascular, respiration, renal, endocrine physiology and reproduction. Sp Sem. Prereq: Physio 3101 (PhysioCB 311).			
<b>3200</b>	<b>Human Physiology</b>	<b>U</b>	<b>5</b>
Teaches the physiology of human organ systems, including the following: nervous system, muscle, gastrointestinal, cardiovascular, respiratory, renal, endocrine, and reproductive systems. This course is designed for students who are planning careers in the health sciences. This is a one-semester course. Prereq: 6 sem or hrs in the biological sciences.			
<b>4998</b>	<b>Research - Independent Study</b>	<b>U</b>	<b>1 - 4</b>
Students will conduct hands-on laboratory research in the areas of cell biology and physiology under the direction of a faculty member in the department of Physiology and Cell Biology. This will involve learning specific laboratory techniques related to the area of the faculty member's biomedical research program, which may include biochemical, molecular, physiological, and genetic methods. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>6101</b>	<b>Advanced Human Physiology I</b>	<b>G</b>	<b>3</b>
First in two semester graduate course sequence covering Cell, Neuro, Muscle, Cardiovascular, GI, Respiratory, Renal & Endocrine Physiology. Au Sem. Prereq: Enrollment in one of the following graduate programs: IBGP, BiomedE, Sport & Exercise Science, Pharm, Anatomy, Pathology Associate, or permission of course director. Not open to students with credit for PhysioCB 601.			
<b>6102</b>	<b>Advanced Human Physiology II</b>	<b>G</b>	<b>3</b>
Second in two semester graduate course sequence covering Cell, Neuro, Muscle, Cardiovascular, GI, Respiratory, Renal & Endocrine Physiology. Au Sem. Prereq: A grade of C- or above in Physio 6101 (PhysioCB 601); and enrollment in IBGP, BiomedE, Sport & Exercise Science, Pharm, Anatomy, or Pathol; or permission of course director. Not open to students with credit for PhysioCB 602.			
<b>7931</b>	<b>Individual Studies in Physiology and Cell Biology</b>	<b>G</b>	<b>1 - 16</b>
Reading, conferences, and laboratory work by individual arrangement with qualified students who desire more intensive and specialized study than is available in other courses. Repeatable to a maximum of 18 completions. This course is progress graded (S/U).			
<b>8101</b>	<b>Advanced Cardiac Physiology</b>	<b>G</b>	<b>3</b>
Advanced presentation of cardiovascular physiology. 1hr journal club and 2hr class. Au Sem. Prereq: Physio 6101 or 6102, or equiv, and permission of instructor.			
<b>8501</b>	<b>Cardiovascular Journal Club</b>	<b>G</b>	<b>1</b>
Journal Club - presentation and discussion of pertinent research articles. Au, Sp Sems. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>8999</b>	<b>Research (Independent Study)</b>	<b>G</b>	<b>1 - 16</b>
Research for thesis or dissertation purposes only. Repeatable to a maximum of 18 completions. This course is progress graded (S/U).			

### Plant Pathology

<b>1100</b>	<b>Exploring Plant Pathology</b>	<b>U</b>	<b>½</b>
Basic understanding of the global trends within plant pathology, the diversity of career opportunities within the industry, planning for a career and opportunities for professional development.			
<b>2000</b>	<b>Molds, Mushrooms, and Mankind</b>	<b>U</b>	<b>3</b>
Fungi have influenced human health, migration, and nutrition for thousands of years. This course studies fungal biology and the impact of fungi in society both historically and currently. Sp Sem. GE nat sci bio course.			
<b>2001</b>	<b>Sick Plants and a Hungry World</b>	<b>U</b>	<b>2</b>
Review of the interactions of plants with plant pathogens and the social, economic, and historic consequences for civilization. Entirely online course. Au, Sp Sems. Prereq: Not open to students with credit for 201.			
<b>3001</b>	<b>General Plant Pathology Lecture</b>	<b>U</b>	<b>3</b>
An introduction to plant diseases caused by fungi, bacteria, viruses, nematodes and parasitic higher plants. Video-linked to Wooster. Au Sem. Prereq: Biology 1101 (101), 1113 (113), 1115H (115H), or Entm1gy 1101 (Entomol 101). Not open to students with credit for 401 or 6001.			
<b>3002</b>	<b>General Plant Pathology Lab</b>	<b>U</b>	<b>2</b>
The lab portion of general plant pathology. Lab work will include experiments involving fungi, bacteria, viruses, nematodes and parasitic higher plants. Video-linked to Wooster. Au Sem. Prereq: Biology 1101 (101), 1113 (113), 1115H (115H), or Entm1gy 1101 (Entomol 101). Concur: 3001 (401). Not open to students with credit for 6001 or 401.			

<b>3797</b>	<b>Study at a Foreign Institution</b>	<b>U</b>	<b>1 - 6</b>
Study abroad opportunities for students in plant pathology, plant health management, etc. and receive Ohio State credit for that work. Prereq: Pre-departure course, and permission of instructor.			
<b>3920</b>	<b>Psychedelic Studies: Neurochemistry, Plants, Fungi, and Society</b>	<b>U</b>	<b>3</b>
A comprehensive examination of the growing psychedelic studies field, including the relevant chemistry, ethnobotany, history, neurobiology, psychology, and emerging policy options.			
<b>4191</b>	<b>Internship Experiences in Plant Health Management</b>	<b>U</b>	<b>1 - 6</b>
Individualized experiential learning opportunity designed to link theoretical classroom knowledge with practical application. Prereq: 3001 and 3002, and permission of instructor. Prereq or concur: FAES 3191. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4193</b>	<b>Undergraduate Individual Studies</b>	<b>U</b>	<b>0 - 3</b>
Problems may be selected in the various areas of plant pathology. Prereq: CPHR 2.5 or above, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>4597</b>	<b>Contemporary Issues: Pesticides, Genetic Engineering, and the Environment</b>	<b>U</b>	<b>3</b>
Contemporary, cultural, and social issues related to pesticide use, genetic engineering and sustainable plant management. Au, Sp Sems. Prereq: Jr or Sr standing. Not open to students with credit for 597. GE cross-disciplinary seminar course.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>0 - 6</b>
Conducting research. Prereq: CPHR 3.0 or above, and GPA 3.0 or above in major, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4999</b>	<b>Research with Distinction</b>	<b>U</b>	<b>0 - 6</b>
Conducting and reporting Research with Distinction (non-Honors). Prereq: CPHR 3.0 or above, and GPA 3.0 or above in major, and submission of Research Plan to College Office, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Research with Distinction</b>	<b>U</b>	<b>0 - 3</b>
Conducting and reporting Research with Distinction Honors. Students are expected to present at the CFAES Undergraduate Research Forum and the Denman Undergraduate Research Forum. Prereq: Honors Standing, and FAES 4590.01H, and CPHR 3.4 or above, and GPA 3.5 or above in major, and submission of Research Plan to College Office, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>5003</b>	<b>Principles of Molecular Plant-Microbe Interactions</b>	<b>U G</b>	<b>2</b>
Molecular bases of plant-microbe interactions ranging from how microbes cause disease to how plants defend themselves. Emphasis will be given to principles of pathogen virulence, recognition of pathogen, host target proteins, defense activation and signaling. Prereq: 3001 or Micrbio 4000.01 or MolGen 4500, or permission of instructor.			
<b>5004</b>	<b>Current Topics Molecular Plant Microbe Interactions</b>	<b>U G</b>	<b>2</b>
Examination of current and historical literature defining the molecular aspects that drive host-microbe-environment interactions. Students will participate in journal article discussions, evaluation of literature, and grant proposal writing and peer review. Prereq: 3001 or Micrbio 4000.01 or MolGen 4500, or permission of instructor.			
<b>5010</b>	<b>Phylobacteriology</b>	<b>U G</b>	<b>2</b>
Taxonomy, molecular biology, physiology, and ecology of plant-associated bacteria that interact with plants, especially those that cause disease and affect plant health. Video-linked to Wooster. Prereq: 3001 and 3002, or 6001 (401), or permission of instructor. Not open to students with credit for 600.01.			
<b>5020</b>	<b>Introductory Plant Virology</b>	<b>U G</b>	<b>2</b>
Plant virus structures, genome organizations and replication strategies. Symptoms and diagnosis of virus diseases of plants. Video-linked to Wooster. Prereq: 3001 and 3002, or 6001 (401), and at least one course taken in Biochem, MolBioc, MolGen, or Micrbio; or permission of instructor. Not open to students with credit for 600.02.			
<b>5030</b>	<b>Plant Nematology</b>	<b>U G</b>	<b>2</b>
Introduction to plant-parasitic nematodes, with emphasis on identification, epidemiology and host interactions. Video-linked to Wooster. Prereq: 3001 and 3002, or 6001 (401), or permission of instructor. Not open to students with credit for 636.			
<b>5040</b>	<b>Science of Fungi: Mycology Lecture</b>	<b>U G</b>	<b>3</b>
Fungi are some of the most important organisms on the planet. This course covers the diversity, biology, and genetics of fungi. Video-linked to Wooster. Au Sem. Prereq: A course in the Biological Sciences, or permission of instructor. Not open to students with credit for 660.			

## 378 Plant Pathology

**5041 Science of Fungi: Mycology Lab** U G 1

Fungi are some of the most important organisms on the planet. This lab covers the diversity, biology and genetics of fungi. Video-linked to Wooster.  
Au Sem. Prereq: A course in the Biological Sciences, or permission of instructor. Concur: 5040. Not open to students with credit for 660.

**5050 Plant Pathogenic Fungi** U G 3

This course is designed to provide a more in-depth look at the filamentous plant pathogens, fungi, to better prepare graduate students planning on constructing careers in plant pathology. This course will cover the different groups of fungal pathogens with examples, their biology, and their impact in society both historically and currently.  
Prereq: 3001 or 6001, or permission of instructor.

**5060 Practical Experiences in Plant Health: Insects & Diseases of Plants** U G 2

Plants can be attacked by a multitude of pathogens and insects. Each plant within a production region has documented pests that can negatively impact plant health. Environment and production practices can influence the outcome of interactions between pathogens and pests. This is a beginning course for students to learn how to recognize symptoms of economically important pathogens and insects.  
Prereq: 5603 or Entmlyg 5600, or permission of instructor. Not open to students with credit for Entmlyg 5606. Cross-listed in Entmlyg.

**5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments** U G 3

Overview of major pathogens and insects affecting health of forest and shade trees with emphasis on diagnosis, ecology, and management. Video-linked to Wooster. Offered odd years.  
Sp Sem. Prereq: Not open to students with credit for 610 or Entmlyg 5110 (Entomol 461). Cross-listed in Entmlyg.

**5120 Diseases of Ornamental Plants** U G 2

Biology and integrated control of important diseases of ornamental plants.  
Sp Sem. Prereq: 3001 (401) and 3002, or 6001, or permission of instructor. Not open to students with credit for 501.

**5130 Turf Diseases and Integrated Turf Health Management** U G 4

A detailed study of the diseases of turfgrass, factors influencing disease severity, and specific measures for disease control such as genetic, cultural, biological, and chemical.  
Prereq: 3001 (401) or 6001, HCS 3470, and Jr or Sr standing; or permission of instructor. Another option includes HCS 3470, and Jr or Sr standing; or permission of instructor. Concur: PLNTPH 3001. Not open to students with credit for 612 and 613.

**5140 Diseases of Field Crops** U G 2

Key diseases that impact crop plants with emphasis on identification, management and field evaluations of management strategies. Video-linked to Wooster.  
Sp Sem. Prereq: Two courses in the Biological Sciences, or permission of instructor. Not open to students with credit for 614.

**5150 Fruit and Vegetable Diseases** U G 2

Study the major diseases of fruit and vegetable crops with emphasis on disease diagnosis and management. Video-linked to Wooster.  
Sp Sem. Prereq: 3001 (401) and 3002, or 6001, or permission of instructor. Not open to students with credit for 615.

**5603 Plant Disease Management** U G 3

Theory and practice of plant disease management; emphasis on integration of cultural, biological, chemical methods and plant disease resistance. Video-linked to Wooster.  
Au Sem. Prereq: 3001 (401) and 3002, or 6001, or permission of instructor. Not open to students with credit for 603.

**5604 Capstone Course: Problem-Based Studies in Plant Health** U G 2

Students will be presented with a current plant health problem from the industry. They will gather diverse information from consultants, synthesize novel solutions, and develop implementation plans.  
Prereq: Jr, Sr, or Grad standing in PlntPth, Entmlyg, or Plant Health Management. Not open to students with credit for Entmlyg 5604. Cross-listed in Entmlyg.

**5685 Plant Disease Diagnosis** U G 2

Study of field and laboratory procedures for diagnosis of plant diseases.  
Su Sem, May Term. Prereq: 3001 (401) and 3002, or 6001, or permission of instructor. Not open to students with credit for 685. Repeatable to a maximum of 4 or hrs.

**6001 Advanced Plant Pathology** G 2

An advanced level of study in plant diseases caused by fungi, bacteria, viruses, nematodes and parasitic higher plants. For graduate students.  
Prereq: A course in Biological Sciences, and Grad standing; or permission of instructor. Not open to students with credit for 3001 or 3002.

**6002.01 Advanced Plant Pathology Lab - Viruses and Bacteria** G 1

This course is intended to prepare students to be able to implement techniques used by virologists and bacteriologists in both lab and field settings.  
Prereq or concur: 5010 and 5020.

**6002.02 Advanced Plant Pathology Lab - Plant Pathogenic Fungi and Nematodes** G 1

This graduate course is intended to prepare students to be able to implement techniques used by nematologists and mycologists in both lab and field settings.  
Prereq or concur: 5030 and 5050.

**6193 Individual Studies** G 0 - 6

Projects may be selected in various areas of plant pathology or plant health management.  
Prereq: CPHR 3.0 or above, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**7002 Plant Disease Epidemiology** G 3

Study of the dynamics of plant diseases; statistical modeling of plant disease epidemics. Video-linked to Wooster.  
Sp Sem. Prereq: 3001 (401) and 3002, or 6001, and an introductory Stat course; or permission of instructor. Not open to students with credit for 702.

**7003.01 Agricultural Genomics: Principles and Applications** G 2

Reviews the principles of most genomic technologies, new developments in the field and emphasize their application in agriculture. Video-linked to Wooster.  
Sp Sem. Prereq: MolGen 4500 (500) or Biochem 5613 (613), or permission of instructor. Concur: HCS 7003.02. Not open to students with credit for 7003 (703), or HCS 7003.

**7004 Functional Biochemistry of Plant Defense** G 3

This course will focus on the basis of biochemical processes as well as signaling pathways and networks involved in plant defense against microbial pathogens. Emphasis will be given to defense hormones and their signaling networks. Basic knowledge of plant physiology, microbiology, and biochemistry; or permission of the instructor required to enroll.

**7300 Plant Health Management Seminar** G 1

This course is designed to cover current topics in plant health management for students in the Master in Plant Health Management program. Topics and guest speakers may differ from semester to semester and will depend on student interest.  
Repeatable to a maximum of 6 cr hrs. Cross-listed in Entmlyg.

**8300 Current Topics in Plant Pathology** G 1 - 2

Readings from the current literature will be examined in detail for both technical and conceptual content. Video-linked to Wooster.  
Au, Sp, Su Sems. Prereq: Grad standing. Repeatable to a maximum of 6 cr hrs.

**8300.01 Molecular Fungal Biology, Genetics, and Genomics** G 2

Designed to explore the biology and genetics of fungal microorganisms. Topics include: fungal reproduction for the major clades, molecular underpinnings of growth, development, and interactions with diverse hosts and whole genome based studies of fungi, including proteomic and systems biology analyses. Primarily literature based.  
Prereq: 5040.

**8300.02 Host Resistance: History and Future Implications for Deployment** G 2

Focuses on the development and knowledge of host resistance and pathogenic diversity in determining what type of resistance should be deployed and explore factors that may impact future success of new genetically modified techniques.  
Prereq: 5603 or 5140; or permission of instructor.

**8400 Molecular Bases of Plant Host-Microbe Interactions** G 3

Introduction to plant host-pathogen interactions, with emphasis on molecular bases of pathogen virulence and host resistance. Video-linked to Wooster.  
Sp Sem. Prereq: 5010 (600.01), 5020 (600.02), 5030 (636), and 5040 (660); or permission of instructor. Not open to students with credit for 602, 841, 842 and 843.

**8899 Plant Pathology Seminar** G 1

Covers various ongoing research topics presented by current graduate students and invited speakers. Video-linked to Wooster.  
Au, Sp Sems. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**8901 Mentored Teaching in Plant Pathology** G 1 - 3

Students work with faculty members to gain intensive hands-on and mentored experiences focused on direct interaction with students and on the scholarly aspects of teaching.  
Prereq: Grad standing and completion of OSU Orientation on Teaching. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**8902 Mentored Extension/Outreach Teaching in Plant Pathology** G 1 - 3

Provides graduate students interested in Extension/Outreach programs with hands-on experience in developing and delivering extension educational programs and materials.  
Prereq: Grad standing. Repeatable to a maximum of 5 cr hrs or 5 completions. This course is graded S/U.

**8999 Plant Pathology Research** G 1 - 15

Research for thesis of dissertation purposes only.  
Prereq: Grad standing. Repeatable. This course is graded S/U.

Polish

<b>1101</b>	<b>Elementary Polish I</b>	<b>U</b>	<b>4</b>
Introduction to Polish; development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with 2 or more years of study in this language in high school. Prereq: Not open to students with credit for 101. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1102</b>	<b>Elementary Polish II</b>	<b>U</b>	<b>4</b>
Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: 1101 (101.01). Not open to students with credit for 102. This course is available for EM credit. GE for lang course. FL Admis Cond course.			
<b>1103</b>	<b>Intermediate Polish I</b>	<b>U</b>	<b>4</b>
Continued development of speaking, listening, reading, and writing skills in cultural context. Closed to native speakers of this language. Prereq: 1102 (102.01). Not open to students with credit for 103. This course is available for EM credit. GE for lang course.			
<b>2104</b>	<b>Intermediate Polish II</b>	<b>U</b>	<b>4</b>
Increasing functional ability in speaking, listening, reading, and writing practice, vocabulary-building; new grammar structures; start developing higher-level language skills in Polish. Closed to native speakers of this language. Prereq: 1103 (104.01). Not open to students with credit for 407.01.			
<b>3101</b>	<b>Advanced Polish I</b>	<b>U</b>	<b>3</b>
Further develop speaking, listening, reading, and writing skills and grammar competence. Prereq: 2104. Not open to students with credit for Slavic 5194 (Au13, Cretu).			
<b>3102</b>	<b>Advanced Polish II</b>	<b>U</b>	<b>3</b>
Further develop speaking, listening, reading, and writing skills and grammar competence. Prereq: 3101. Not open to students with credit for Slavic 5194 (Sp15, Advanced Polish).			

### Political Science

<b>1100</b>	<b>Introduction to American Politics</b>	<b>U</b>	<b>3</b>
Introduction to American politics, the institutions and processes which create public policy, the strengths and weaknesses of the American political systems. Prereq: Not open to students with credit for 3100 (300), 101, or 101H. This course is available for EM credit. GE soc sci orgs and politics course. SS Admis Cond course.			
<b>1100H</b>	<b>Introduction to American Politics</b>	<b>U</b>	<b>3</b>
Introduction to American politics, the institutions and processes which create public policy, and the strengths and weaknesses of the American political systems. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 3100 (300), 101, or 101H. GE soc sci orgs and politics course. SS Admis Cond course.			
<b>1165</b>	<b>Introduction to Politics</b>	<b>U</b>	<b>3</b>
Introduction to politics and political science: power, democracy and authoritarianism, political participation, the state, political institutions, subfields of the discipline, and political research methodology. Prereq: Not open to students with credit for 165 or 165H. GE soc sci orgs and politics course. SS Admis Cond course.			
<b>1200</b>	<b>Introduction to Comparative Politics</b>	<b>U</b>	<b>3</b>
Introduction to modern nation-states outside the United States: problems of state- and nation-building, representation, conflict, and making of government policy in selected countries. Prereq: Not open to students with credit for 100 or 100H. This course is available for EM credit. GE soc sci orgs and politics and diversity global studies course.			
<b>1300</b>	<b>Global Politics</b>	<b>U</b>	<b>3</b>
Cooperation and conflict in world politics. Covers basic theories of international relations and key issues, including security, political economy, international organizations, and the environment. Prereq: Not open to students with credit for 145 or 145H. GE soc sci human, nat, and econ resources and diversity global studies course.			
<b>2150</b>	<b>Voters and Elections</b>	<b>U</b>	<b>3</b>
Study of US elections, focusing on voter attitudes, group behavior, and political participation. Prereq: Not open to students with credit for 201 or 201H. GE soc sci indivs and groups course. SS Admin Cond course.			
<b>2194.01</b>	<b>Group Studies in American Politics</b>	<b>U</b>	<b>1 - 3</b>
Group studies in American politics. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>2194.02</b>	<b>Group Studies in Comparative Politics</b>	<b>U</b>	<b>1 - 3</b>
Group studies in comparative politics. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>2194.03</b>	<b>Group Studies in International Politics</b>	<b>U</b>	<b>1 - 3</b>
Group studies in international politics. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>2194.04</b>	<b>Group Studies in Political Theory</b>	<b>U</b>	<b>1 - 3</b>
Group studies in political theory. Repeatable to a maximum of 6 cr hrs or 2 completions.			

<b>2194.05</b>	<b>Group Studies in Public Policy</b>	<b>U</b>	<b>1 - 3</b>
Group studies in public policy. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>2300</b>	<b>American Foreign Policy</b>	<b>U</b>	<b>3</b>
The role of the United States in world politics since the Second World War, emphasizing structural change in economic and political-military relations. Prereq: Not open to students with credit for 245 or 245H. GE soc sci orgs and politics and diversity global studies course.			
<b>2367</b>	<b>Contemporary Issues in American Politics</b>	<b>U</b>	<b>3</b>
Discussion of and critical writing about controversies in contemporary American politics; aimed at fostering analytical abilities in reading comprehension, oral, and written expression. Prereq: 101 or 300, and English 110 or 111, and Soph standing; or permission of instructor. Not open to students with credit for 367.01 or 367.01H. GE writing and comm course: level 2 and soc sci orgs and politics course.			
<b>2400</b>	<b>Introduction to Political Theory</b>	<b>U</b>	<b>3</b>
An introduction to the field of political theory through classic and contemporary texts and selected case studies. Prereq: Not open to students with credit for 210 or 210H. GE soc sci orgs and politics course. SS Admis Cond course.			
<b>2400H</b>	<b>Introduction to Political Theory</b>	<b>U</b>	<b>3</b>
An introduction to the field of political theory through classic and contemporary texts and selected case studies. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 210 or 210H. GE soc sci orgs and politics course.			
<b>3001</b>	<b>Economy, Polity, and Community</b>	<b>U</b>	<b>3</b>
Examines how different ways of thinking about human nature shape our understanding of philosophy, politics, and economics. Prereq: Econ 2001.XX or 2002.01 or 2002.03H; and Philos 2400 or PolitSc 2400 or 2400H; and Econ 5001 or Philos 2500 or 5540 or PolitSc 4553 or 4553H; and Philos 3300; and Econ 3400 or IntStds 3400 or PolitSc 3780 or 3780H; and PolitSc 4280 or 4380. Not open to students with credit for Econ 3001 or Philos 3001. Cross-listed in Econ and Philos.			
<b>3002</b>	<b>Tradition, Progress, and Utopia</b>	<b>U</b>	<b>3</b>
Examines how different ways of thinking about social and political change shape our understanding of philosophy, politics, and economics. Prereq: Econ 2001.XX or 2002.01 or 2002.03H; and Philos 2400 or PolitSc 2400 or 2400H; and Econ 5001 or Philos 2500 or 5540 or PolitSc 4553 or 4553H; and Philos 3300; and Econ 3400 or IntStds 3400 or PolitSc 3780 or 3780H; and PolitSc 4280 or 4380. Not open to students with credit for Econ 3002 or Philos 3002. Cross-listed in Econ and Philos.			
<b>3115</b>	<b>Introduction to the Policy Process</b>	<b>U</b>	<b>3</b>
Introduction to the workings of policy-making processes within governments, and the use of social science reasoning to evaluate and improve the content of policies. Prereq: Not open to students with credit for 305.			
<b>3170</b>	<b>Political Psychology</b>	<b>U</b>	<b>3</b>
Introduces students to political psychology, its development from parent disciplines, its topics and problems, its research results and methods, and their applications to current affairs. Prereq: Not open to students with credit for 403 or Psych 403.			
<b>3191</b>	<b>Political Science Internship</b>	<b>U</b>	<b>1</b>
Combines experience in political institutions or policy processes with analysis of that experience. Prereq: Permission of the department. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>3220</b>	<b>Politics of the Developing World</b>	<b>U</b>	<b>3</b>
A general introduction to the theoretical and substantive literature dealing with the historical development and contemporary characteristics of the new states of Asia and Africa. Prereq: Not open to students with credit for 541. GE soc sci human, nat, and econ resources and diversity global studies course.			
<b>3225</b>	<b>Post-Conflict Reconstruction</b>	<b>U</b>	<b>3</b>
Examines why some countries recover quickly from war while other countries remain poor and undeveloped. Examines current explanations of post-conflict development; provides background knowledge and tools to evaluated explanations. GE soc sci human, nat, and econ resources and diversity global studies course.			
<b>3240</b>	<b>Political Violence</b>	<b>U</b>	<b>3</b>
This course will expose students to major theoretical debates and broad empirical patterns of intrastate conflict during the post-World War II era.			
<b>3245</b>	<b>Radicalization, Deradicalization, Countering Violent Extremism</b>	<b>U</b>	<b>3</b>
Students will gain in-depth knowledge about the multifaceted processes of radicalization and deradicalization and the various approaches to both that have been developed in countering violent extremism policies.			
<b>3280</b>	<b>Politics of Markets</b>	<b>U</b>	<b>3</b>
Introduction to the interaction between politics and markets, in theory and in practice. We study how markets are embedded in political and social institutions, and how political systems and markets are organized across time and space. Prereq: Not open to students with credit for 4280.			

## 380 Political Science

**3290 Comparative Public Policy** U 3

This course serves as an introduction to public policy in comparative perspective; its focus is on wealthy democracies. The first part of the course explores broad theories about how and why public policy differs so dramatically across countries. The second part of the course focuses on cross-national differences across specific policy domains.

**3310 Defense Policy and National Security** U 3

This course addresses some of the basic issues surrounding national security policy. The primary focus is on policy issues related to the use of force between and within countries. The goal of the course is to provide the analytical tools and factual knowledge that are necessary to identify and assess current and future threats to national security.

**3310H Honors Defense Policy and National Security** U 3

This course addresses some of the basic issues surrounding national security policy. The primary focus is on policy issues related to the use of force between and within countries. The goal of the course is to provide the student with the analytical tools and factual knowledge that they will need to identify and assess current and future threats to national security.  
Prereq: Honors standing, and PolitSc 1300 (145) or 2300 (245); or permission of instructor. Not open to students with credit for 3310.

**3380 Political Analysis of International Economic Relations** U 3

Examines the relationship between political and economic events in the international system; topics include global interdependence, inequality, scarce resources, and periphery nation strategies.  
Prereq: Not open to students with credit for 4380.

**3420 Political Theories of Democracy** U 3

An examination of theories of democracy, focusing on normative and descriptive dilemmas such as participation versus liberty in democratic societies.  
Prereq: 2400 (210). Not open to students with credit for 571.

**3430 Political Theories of Freedom** U 3

Provides an overview of the various ways in which the value of human freedom has been understood and pursued in political life.  
Prereq: 2400 (210). Not open to students with credit for 570.

**3440 Political Theories of Justice** U 3

Focuses on debates among political theorists about the meaning of justice; "What is justice?" and "How might we order our world justly?"  
Prereq: 2400 (210). Not open to students with credit for 572.

**3450 Ethics and Public Policy** U 3

Contemporary approaches to public policy evaluation and their ethical foundations, including efficiency, security, rights, welfare, and equity.  
Prereq: Not open to students with credit for 304.

**3460 Global Justice** U 3

Examines the idea of justice between states and among the people of the world. What would a just world look like? How should we live in our unjust world? Current debates about war, the environment, diversity and poverty will be considered.

**3500 Political Games: Rational Choice Theory and the Study of Politics** U 3

Are political outcomes and institutions the result of decision-making by rational, self-interested political actors? This course explores how the assumption of individual rationality has shaped the field of political science.

**3549 Survey Research in Political Science** U 3

The conducting of public opinion polls.  
Prereq: Not open to students with credit for 449, 581, or Comm 449.

**3596 Nationalism and Ethnicity** U 3

Explores socio-political identities, especially ethnicity and nationality, from a comparative perspective. Drawing upon theories from political science, psychology, anthropology, sociology, and economics, we will study the origins and characteristics of these identities, as well as their consequences for democracy, economic development, and violent conflict.  
GE soc sci indivs and groups and cross-disciplinary seminar course.

**3780 Data Literacy and Data Visualization** U 3

Introduction to the tools of data analysis in political science, with an emphasis on data visualization.  
GE data only course.

**3780H Data Literacy and Data Visualization** U 3

Most social science debates can be addressed with data, and sources of data are growing exponentially. This course introduces students to tools of data analysis and principles behind their use in the context of social-science applications.  
GE data only course.

**3785 Data Science for the Social and Behavioral Sciences** U 3

Introduction to new issues in data science, including big data, machine learning, network interdependencies, and automated extraction of meaning from widely varied sources of data.

**3798 Field Research Methods for Politics & Development in Africa: Education Abroad in Malawi** U 3

This education abroad course focuses on research methodologies used to understand political and economic outcomes in Africa. The course will be especially useful for undergraduate students who plan to conduct research or design programs and interventions in the developing world.

**3905 Political Manipulation** U 3

Examines how political actors manipulate the rules and the salience and availability of information to shift political outcomes in their favor.  
Prereq: Not open to students with credit for 577.

**3910 Identity Politics** U 3

Explores who controls the meaning of identity in society; examining identity from the perspective of liberal, sociological, and social psychological, structuralist, and institutionalist theories.  
Prereq: Not open to students with credit for 547.

**3912 Political Leadership** U 3

Establishment of a working definition of political leadership, investigation of recruitment of leaders, analysis of major functions political leaders perform, and assessment of consequences of political leadership.  
Prereq: 1100 (100), 1200 (101), or 3100 (300). Not open to students with credit for 612.

**4110 The American Presidency** U 3

An examination of the American presidency, emphasizing the contemporary role of the president, the institutionalized presidency, and theories of presidential behavior.  
Prereq: Not open to students with credit for 501.

**4115 Bureaucracy and Public Policy** U 3

An examination of bureaucracies as political institutions, and a consideration of their role in several areas of public policy implementation.  
Prereq: Not open to students with credit for 510.

**4120 U.S. Congress** U 3

Analysis of legislatures and legislators, with a focus on the U.S. Congress and some attention to state legislatures and representative assemblies in other countries.  
Prereq: Not open to students with credit for 517. GE soc sci orgs and politics course.

**4123 Political Crisis and Reform** U 3

A survey of previous episodes of major reform in American politics, focusing on strategies used by reformers, evaluating the policy and political impact of their reforms, and applying lessons from these cases to contemporary political problems.  
GE historical study and soc sci orgs and politics course.

**4125 American State Politics** U 3

Comparative analysis of politics in the American states.  
Prereq: 1100 (101) or 3100 (300) or permission of instructor. Not open to students with credit for 507.

**4126 Ohio Politics** U 3

Examination of state politics with special reference to Ohio.  
Prereq: Not open to students with credit for 506.

**4127 Governing Urban America** U 3

This course will examine the major problems facing urban communities in the 21st Century; the economic, social, and political forces that have historically shaped - and continue to influence - their development; the role of government in addressing urban problems; and the major participants and stakeholders in city politics.  
Prereq: Not open to students with credit for 505.

**4127H Governing Urban America** U 3

This course will examine the major problems facing urban communities in the 21st century; the economic, social, and political forces that have historically shaped--and continue to influence--their development; the role of government in addressing urban problems; and the major participants and stakeholders in city politics.  
Prereq: Honors standing. Not open to students with credit for 4127 (505).

**4130 Law and Politics** U 3

Analysis of the roles of judges and lawyers as participants in the American political process; analysis of courts as political institutions.  
Prereq: Not open to students with credit for 516.

**4131 American Supreme Court** U 3

This course focuses on the U.S. Supreme Court as an institution and emphasizes the ways in which its formal and informal norms and structures shape the nature and content of the law the Court makes.

**4132H Supreme Court Decision Making** U 3

Study of explanations for Supreme Court decisions; use of those explanations and independent research to predict justices' positions in current cases.  
Prereq: Honors standing or permission of instructor. Not open to students with credit for 521H.

**4135 American Constitutional Law** U 3

Assessment of the contemporary realities of U.S. governmental authority as interpreted by the judiciary; emphasis on judicial review, case and controversy requirements, and legislative and executive power.  
Prereq: Not open to students with credit for 520.

<b>4136</b>	<b>Civil Liberties</b>	<b>U</b>	<b>3</b>
An examination of civil liberties decisions by American courts, their legal and political bases, and their effects on government and society. Prereq: Not open to students with credit for 519.			
<b>4137</b>	<b>The Politics of Legal Decision Making</b>	<b>U</b>	<b>3</b>
An examination of the literature relating social-science theories and research to the law, focusing on the criminal justice system. Prereq: Not open to students with credit for 515.			
<b>4138</b>	<b>Women and the Law</b>	<b>U</b>	<b>3</b>
An examination of the legal status of women and the ways in which law affects the situation of women in American society. Prereq: Not open to students with credit for 514.			
<b>4139</b>	<b>Gun Politics</b>	<b>U</b>	<b>3</b>
Examination of the arguments and issues surrounding gun control in the United States. Prereq: Not open to students with credit for 518.			
<b>4139E</b>	<b>Gun Politics</b>	<b>U</b>	<b>3</b>
Examination of the arguments and issues surrounding gun control in the United States. Prereq: Not open to students with credit for 4139 (518).			
<b>4140</b>	<b>Black Politics</b>	<b>U</b>	<b>3</b>
Economic, political, and social constraints on the development of black political power; the efforts made by black people in recent times to organize for effective political action. Prereq: Not open to students with credit for 504 or AfAmAst 4504 (504). Cross-listed in AfAmAst 4504.			
<b>4143</b>	<b>Race, Ethnicity, and American Politics</b>	<b>U</b>	<b>3</b>
The goal of this course is to explore, discuss, and better understand the relationship between perceptions of racial identity, attributions of racial difference, and politics, broadly defined.			
<b>4150</b>	<b>American Political Parties</b>	<b>U</b>	<b>3</b>
Theories of political parties, party organization, individual voting behavior, nomination and electoral politics, the party in government. Prereq: Not open to students with credit for 575. GE soc sci orgs and politics course.			
<b>4152</b>	<b>Campaign Politics</b>	<b>U</b>	<b>3</b>
The organization and strategy of American political campaigns; practical politics seen in the light of knowledge about political behavior and public opinion. Prereq: Not open to students with credit for 502.			
<b>4160</b>	<b>Public Opinion</b>	<b>U</b>	<b>3</b>
Origins and nature of political attitudes; the content of public opinion; the public's influence on policy-making. Prereq: Not open to students with credit for 503.			
<b>4164</b>	<b>Political Participation and Voting Behavior</b>	<b>U</b>	<b>3</b>
A study of political participation and its correlates, determinants of the vote decision, and analysis of recent American elections. Prereq: Not open to students with credit for 574.			
<b>4165</b>	<b>Media and American Politics</b>	<b>U</b>	<b>3</b>
This course presents the modern study of the media and its role in the American political system, including supply and demand pressures and how they affect media content, its effects on citizens, and the emerging role of social media in politics. Prereq: Not open to students with credit for 509.			
<b>4191</b>	<b>Internship</b>	<b>U</b>	<b>0 - 10</b>
Combines experience in political institutions or policy processes with analysis of that experience in light of relevant scholarly literature. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 3 completions.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 10</b>
Students will devote their time to special projects including papers, exams and practical political experience. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>4200</b>	<b>Politics of Modern Democracies</b>	<b>U</b>	<b>3</b>
A survey of the basic institutions and politics of modern democracies, with emphasis on representativeness and democratic stability. Prereq: Not open to students with credit for 535.			
<b>4210</b>	<b>Politics of European Integration</b>	<b>U</b>	<b>3</b>
A survey of the politics of European integration since the Second World War; topics include theories of political integration, institutions of the EU, its policies and decision making, common currency, and internal and external relations. Prereq: Not open to students with credit for 528.			
<b>4218</b>	<b>Russian Politics</b>	<b>U</b>	<b>3</b>
Survey of the politics of Russia and the former soviet states with emphasis on democratization, economic reform, institutional development, elites, mass behavior, and ideology. Prereq: Not open to students with credit for 533.			

<b>4231</b>	<b>China: State and Society</b>	<b>U</b>	<b>3</b>
The 21st-century rise of China and its effects on Chinese politics and society. Prereq: Not open to students with credit for 536.			
<b>4240</b>	<b>Latin American Politics</b>	<b>U</b>	<b>3</b>
A study of political processes, institutions, and groups in Latin America, with emphasis on constitutional, geographical, social, and economic environments in which they operate. Prereq: Not open to students with credit for 540.01.			
<b>4242</b>	<b>Incomplete Democracies</b>	<b>U</b>	<b>3</b>
Explores various forms of violence including electoral violence and political assassination, organized crime, police brutality, and other human rights abuses in Latin America. Prereq: Soph standing or above. Not open to students with credit for 542 or IntStd 4242 (542). Cross-listed in IntStd.			
<b>4245H</b>	<b>Democratic Erosion</b>	<b>U</b>	<b>3</b>
How do democracies become less democratic? This course will explore the causes and consequences of democratic breakdown in countries around the world and over time. Prereq: Honors standing, or permission of instructor.			
<b>4250</b>	<b>African Politics</b>	<b>U</b>	<b>3</b>
An introductory survey of Sub-Saharan African politics from the pre-colonial period to the contemporary era. It will examine the common themes, issues, and trends that shape politics and development across forty-nine countries. Students will gain an understanding of how context shapes political behavior and how historical and political forces have influenced African politics. Prereq: Not open to students with credit for 4597.02 (Au13, African Politics), 4250H, or AfAmAst 4250. GE soc sci orgs and politics and diversity global studies course. Cross-listed in AfAmAst.			
<b>4270</b>	<b>The Canadian Political System</b>	<b>U</b>	<b>3</b>
The Canadian political system, including institutional, behavioral, socio-economic, cultural, and ideological components, often in comparison with the United States' political system. Prereq: Not open to students with credit for 527.			
<b>4285</b>	<b>The Comparative Politics of the Welfare State</b>	<b>U</b>	<b>3</b>
Analyzes different kinds of welfare capitalism including social, economic, and political considerations shaping welfare policy; and contemporary welfare reform as an exercise in reallocation, reorganization, and budget-cutting. Prereq: Not open to students with credit for 578.			
<b>4300</b>	<b>Theories of International Relations</b>	<b>U</b>	<b>3</b>
Various theories of world politics, such as realism, liberalism, long cycles, domestic and bureaucratic politics, and decision-making level theory. Prereq: 1300 (145). Not open to students with credit for 550.			
<b>4305</b>	<b>International Theory</b>	<b>U</b>	<b>3</b>
Various theories of world politics, such as realism, liberalism, long cycles, domestic and bureaucratic politics, and decision-making level theory. Prereq: 1300 (145).			
<b>4310</b>	<b>Security Policy</b>	<b>U</b>	<b>3</b>
National security and military policy issues and trends since 1945; covers containment, deterrence, Vietnam, nuclear weapons, terrorism, and globalization. Prereq: Not open to students with credit for 552.			
<b>4315</b>	<b>International Security and the Causes of War</b>	<b>U</b>	<b>3</b>
Examines various issues regarding international conflict and cooperation, including theories of strategic interaction and the causes of war. Prereq: Not open to students with credit for 544.			
<b>4318</b>	<b>The Politics of International Terrorism</b>	<b>U</b>	<b>3</b>
Examines international terrorism's concepts and actors, the motivations and causes of terrorism, the experience of the United States, and tensions between freedoms and security. Prereq: Not open to students with credit for 548.			
<b>4320</b>	<b>Strategies for War and Peace</b>	<b>U</b>	<b>3</b>
Examination of how political leaders make decisions, emphasizing such issues as leaders' reasoning processes and the impact of public opinion and foreign policy bureaucracies. Prereq: Not open to students with credit for 545.			
<b>4326</b>	<b>Russian Foreign Policy</b>	<b>U</b>	<b>3</b>
Basic concepts about, and choices in, Russian foreign policy; development and presentation of patterns of relations with key nations; major problems in future relationships. Prereq: Not open to students with credit for 555.			
<b>4327</b>	<b>Politics in the Middle East</b>	<b>U</b>	<b>3</b>
Politics of Arab-Israeli relations, Persian Gulf, Islamic fundamentalism, and oil; processes of change and their effects on governments and international relations. Prereq: Not open to students with credit for 546.			
<b>4330</b>	<b>Global Governance</b>	<b>U</b>	<b>3</b>
Examination of emergence and form of global governance, including questions of legitimation, democratization, and enforcement; as well as collective security, humanitarian intervention, and proliferation. Prereq: Not open to students with credit for 556.			

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### 4331 The United Nations System U 3

Activities and potential of the United Nations system in promoting economic well-being, environmental management, resource sharing, social justice, and control of violence. Prereq: Not open to students with credit for 551.

### 4332 Politics of Globalization U 3

Examines globalization's origins, impacts on human welfare, and political conflicts that arise from it, including actions of governments, multinational corporations, and the anti-globalization movement. Prereq: Not open to students with credit for 557.

### 4335 International Environmental Politics U 3

Theories and debates over sustainable development, environment, and security, and effectiveness of international regimes with a focus on international fisheries management and global climate change. Prereq: Not open to students with credit for 559.

### 4381 Comparative International Political Economy U 3

A survey of foreign economic policies followed by European and other advanced industrial economies since the Napoleonic Wars, with a special emphasis on Britain, France, Germany, the United States, and Japan. Prereq: Not open to students with credit for 554.

### 4385 Quantitative Studies of International Conflict U 3

Acquaints students with the quantitative literature on conflict and war. Prereq: 4781 or equiv. Not open to students with credit for 4385E.

### 4385E Quantitative Studies of International Conflict U 3

Acquaints students with the quantitative literature on conflict and war. Prereq: 4781 or equiv. Not open to students with credit for 4385.

### 4455 Human Rights U 3

Examines human rights, including the United Nations Declaration on Human Rights; coercive enforcement of rights; as well as hunger, violence, persecution, and economic rights. Prereq: Not open to students with credit for 564.

### 4465 Feminist Political Theory U 3

Examines concepts in feminist political theory including the articulation of feminism, the subjects of feminist theory, the relation of race, class and sexuality to gender experience, and the use of feminist theory to transform conceptions of justice. Prereq: Not open to students with credit for WGSSt 4465. Cross-listed in WGSSt.

### 4553 Game Theory for Political Scientists U 3

Provides entry-level understanding of the basic concepts of game theory and how these concepts are applied to the study of political phenomena. Prereq: Not open to students with credit for 587.

### 4553H Game Theory for Political Scientists U 3

Provides entry-level understanding of the basic concepts of game theory and how these concepts are applied to the study of political phenomena. Prereq: Not open to students with credit for 4553 (587).

### 4597.01 International Cooperation and Conflict U 3

An examination of the relationships industrialized countries have with each other and developing nations; focus on potential for cooperation and conflict. Prereq: Jr or Sr standing. Not open to students with credit for 597.01 or 597.01H. GE cross-disciplinary seminar.

### 4597.02 Political Problems of the Contemporary World U 3

Critical political problems of industrialized and developing societies, including governmental legitimacy, conflict and violence, social welfare, equality, and economic development. Prereq: Jr or Sr standing. Not open to students with credit for 597.02, 597.02E, or 597.02H. GE cross-disciplinary seminar course.

### 4597.02H Political Problems of the Contemporary World U 3

Critical political problems of industrialized and developing societies, including governmental legitimacy, conflict and violence, social welfare, equality, and economic development. Prereq: Honors standing or permission of instructor; and Jr or Sr standing. Not open to students with credit for 597.02, 597.02H, or 597.02E. GE cross-disciplinary seminar course.

### 4780 Thesis Research Colloquium U 3

Designed for Political Science majors writing senior theses. We will study the elements of a successful research paper including how to formulate a question, how to identify the right method for investigating it, and how to conduct research. Concur: Second semester Jr standing, or permission of instructor.

### 4781 Data Analysis in Political Science I U 3

Covers basic techniques for analyzing data in political science. Prereq: Math 1151 and one course in PolitSc at the 3000 level or above; or permission of instructor. Not open to students with credit for 485, 4781H (485H), 585, or 585H. GE data analysis course.

### 4782 Data Analysis in Political Science II U 3

Covers advanced techniques for analyzing data in political science. Prereq: Math 1151 and 4781 (485), or permission of instructor. Not open to students with credit for 586.

### 4784 Complexity Science and the Study of Politics U 3

Familiarize students with agent-based models and complexity science to better understand political behavior. Prereq: 3780 or 4781, or permission of instructor. Not open to students with credit for 4784E.

### 4784E Complexity Science and the Study of Politics U 3

Familiarize students with agent-based models and complexity science to better understand political behavior. Prereq: 3780 or 4781, or permission of instructor. Not open to students with credit for 4784.

### 4891 Topics in American Politics U 3

Selected topics in American politics; topics vary by section and instructor. Repeatable to a maximum of 6 cr hrs.

### 4892 Topics in Comparative Politics U 3

Selected topics in comparative politics; topics vary by section and instructor. Repeatable to a maximum of 6 cr hrs.

### 4893 Topics in International Politics U 3

Selected topics in international politics; topics vary by section and instructor. Repeatable to a maximum of 6 cr hrs.

### 4893H Honors Seminar in International Politics U 3

Intensive study of selected political science topics and issues in a seminar format; topics vary. Prereq: Honors standing or permission of instructor. Repeatable to a maximum of 12 cr hrs.

### 4894 Topics in Political Theory U 3

Selected topics in political theory; topics vary by section and instructor. Repeatable to a maximum of 6 cr hrs.

### 4894H Honors Seminar in Political Theory U 3

Intensive study of selected political science topics and issues in a seminar format; topics vary. Prereq: Honors standing or permission of instructor. Repeatable to a maximum of 12 cr hrs.

### 4920H Politics in Film and Television U 3

Political films and TV shows often convey an understanding of the political world. How films portray the political process may influence society's attitudes toward politicians and government institutions. Students will compare the portrayal of politics in films and TV to the reality as understood through political science. This is not part of the FilmStd major and does not count toward requirements. Prereq: Honors standing. Not open to students with credit for 4920.

### 4940 The Politics of Immigration U 3

Provides overview of international migration phenomenon: patterns of international migration, reasons for immigration, acceptance of immigrants by governments and public, dynamics of anti-immigrant sentiment. Prereq: Not open to students with credit for 543.

### 4998 Undergraduate Research in Political Science U 1 - 10

Undergraduate research in variable topics. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

### 4999 Undergraduate Thesis Research U 2 - 4

Thesis research with thesis adviser. Minimum of two semesters required of candidates for BA with research distinction in political science. Must meet standards for graduation with research distinction. Prereq: Sr standing, and enrollment in PolitSc major, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

### 4999H Honors Thesis Research U 2 - 4

Honors thesis research with thesis adviser. Minimum of two semesters required of candidates for BA with distinction in political science. Prereq: Honors standing, and Sr standing, and enrollment in Political Science major, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

### 5000 Quantum Mind and Social Science U G 3

Examines the growing, if still speculative, possibility that consciousness and therefore society are macroscopic quantum mechanical phenomena. If that's right, today's social sciences are based upon a fundamental mistake since they assume that human beings are classical machines. Replacing classical assumptions in social science with quantum ones would be a revolution in thought. Prereq: Permission of instructor.

### 5411 Justice, Sin, and Virtue: Ancient & Medieval Political Thought U G 3

This course focuses on foundational texts in western political thought: from ancient Athens, republican and imperial Rome, the Christian middle ages, and the Italian Renaissance. These works deal with themes that remain central in modern political life, including social justice, political action and religious faith, and the struggle between civic virtue and self-interest. Prereq: Not open to students with credit for 4411 (470), or 6411 (670).



<b>5412</b>	<b>Life, Liberty, and Property: Early Modern Political Thought</b>	<b>U G</b>	<b>3</b>
Why do we have government? What are the proper limits of its authority? What should we do when its demands conflict with our moral or religious beliefs? These questions lie at the center of early modern political thought, and gave rise to the idea of the social contract. Prereq: Not open to students with credit for 4412 (471) or 6412 (671).			
<b>5413</b>	<b>Democracy, Equality &amp; Revolution: 19th Century Political Thought</b>	<b>U G</b>	<b>3</b>
This course examines some of the earliest and most influential attempts to wrestle with the practical implications of living in a world where people were not only considered equal in theory, but were becoming equal in fact. Topics of discussion will include the relationship between liberty and equality, individualism and conformity, alienation and exploitation, and morality and power. Not open to students with credit for 6413 (672) or 4413 (472).			
<b>5414</b>	<b>Liberalism, Totalitarianism, and Empire: 20th Century Political Thought</b>	<b>U G</b>	<b>3</b>
The 20th century was a time of unprecedented transformations: world wars, genocide, the collapse of colonialism and the spread of capitalism. This course examines the political theories that contributed to these developments as well as efforts to understand these changes. Prereq: Not open to students with credit for 4414 (473) or 6414 (673).			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Repeatable to a maximum of 30 cr hrs or 15 completions. This course is progress graded.			
<b>6194.01</b>	<b>Contemporary Political Problems</b>	<b>G</b>	<b>3</b>
Contemporary political problems. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>6194.02</b>	<b>Contemporary American Political Problems</b>	<b>G</b>	<b>3</b>
Contemporary political problems. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>6194.03</b>	<b>Contemporary Comparative Political Problems</b>	<b>G</b>	<b>3</b>
Contemporary political problems. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>6194.04</b>	<b>Contemporary International Political Problems</b>	<b>G</b>	<b>3</b>
Contemporary political problems. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>6194.05</b>	<b>Contemporary Theoretical Political Problems</b>	<b>G</b>	<b>3</b>
Contemporary political problems. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>6350</b>	<b>Politics of Global Climate Change</b>	<b>G</b>	<b>3</b>
Climate change is among the most important challenges of our time and is the subject of heated political debate within and across countries. This course provides an advanced overview of the politics of climate change, with an emphasis on its international and global dimensions. Prereq: Grad standing.			
<b>7000</b>	<b>Foundations of Political Science</b>	<b>G</b>	<b>3</b>
Introductory study of diverse efforts to ground knowledge of politics, positivist, and post-positivist views of science, sources of formal rigor, and interpretation and evaluation. Prereq: Not open to students with credit for 790.			
<b>7095.01</b>	<b>Teaching Political Science</b>	<b>G</b>	<b>3</b>
Examination of issues in teaching political science in colleges and universities, and preparation for teaching careers.			
<b>7095.02</b>	<b>Prospectus and Professional Development</b>	<b>G</b>	<b>3</b>
Advanced course to prepare graduate students to write dissertation prospectus.			
<b>7100</b>	<b>Foundations of American Politics</b>	<b>G</b>	<b>3</b>
Introduction to central research areas and literature of the field of American politics. Prereq: Not open to students with credit for 709.			
<b>7120</b>	<b>Legislative Politics</b>	<b>G</b>	<b>3</b>
Analysis of the functioning and policy product of American legislatures; intensive reviews of selected aspects of the legislative literature to be conducted. Prereq: Not open to students with credit for 717.			
<b>7125</b>	<b>Federalism</b>	<b>G</b>	<b>3</b>
Examination of how multi-level governance shapes the incentives of political elites and affects the ability of voters to hold officials accountable. Covers both American and comparative politics topics and substantive questions dealing with political institutions and mass behaviors. Prereq: Not open to students with credit for 704.			
<b>7140</b>	<b>Race and Ethnicity</b>	<b>G</b>	<b>3</b>
An examination of the role of race and ethnicity in American politics, including public opinion, political incorporation, electoral behavior, and minority representation. Prereq: Not open to students with credit for 707.01 or 707.02.			

<b>7160</b>	<b>Public Opinion</b>	<b>G</b>	<b>3</b>
Intensive analysis of literature on selected topics in public opinion. Prereq: Not open to students with credit for 703.			
<b>7193.01</b>	<b>American Politics</b>	<b>G</b>	<b>1 - 10</b>
Individual studies in political science; student work is evaluated by papers and/or special examinations. Repeatable to a maximum of 36 cr hrs or 36 completions. This course is graded S/U.			
<b>7193.02</b>	<b>Comparative Politics</b>	<b>G</b>	<b>1 - 10</b>
Individual studies in political science; student work is evaluated by papers and/or special examinations. Repeatable to a maximum of 36 cr hrs or 36 completions. This course is graded S/U.			
<b>7193.03</b>	<b>International Politics</b>	<b>G</b>	<b>1 - 10</b>
Individual studies in political science; student work is evaluated by papers and/or special examinations. Repeatable to a maximum of 36 cr hrs or 36 completions. This course is graded S/U.			
<b>7193.04</b>	<b>Political Theory</b>	<b>G</b>	<b>1 - 10</b>
Individual studies in political science; student work is evaluated by papers and/or special examinations. Repeatable to a maximum of 36 cr hrs or 36 completions. This course is graded S/U.			
<b>7193.05</b>	<b>Political Methodology</b>	<b>G</b>	<b>1 - 10</b>
Individual studies in political science; student work is evaluated by papers and/or special examinations. Repeatable to a maximum of 36 cr hrs or 36 completions. This course is graded S/U.			
<b>7200</b>	<b>Basic Theories in the Study of Comparative Politics</b>	<b>G</b>	<b>3</b>
Examination of such concepts and theories as structural-functional analysis, general systems theory, and sociocultural systems as determinants of governmental structures. Prereq: Not open to students with credit for 725.			
<b>7205</b>	<b>Democratic Transitions</b>	<b>G</b>	<b>3</b>
Theoretical examination of the dynamics of the transition from authoritarian to democratic regimes, with special attention to southern Europe and South America. Prereq: Not open to students with credit for 744.			
<b>7206</b>	<b>Comparative Political Institutions</b>	<b>G</b>	<b>3</b>
Study of state building process, regime types, and contemporary governmental institutions from a broad cross-national perspective. Prereq: Not open to students with credit for 776.			
<b>7208</b>	<b>State-Building</b>	<b>G</b>	<b>3</b>
Where do national states come from? How strong are they? Course surveys contemporary answers to both questions, examining political, military-strategic, ecological, and cultural explanations for formation and development of national states in Europe. Prereq: Not open to students with credit for 726.			
<b>7220</b>	<b>The Politics of the Developing World</b>	<b>G</b>	<b>3</b>
Theories, approaches, and methods in the analysis of political life in Asia, Africa, and Latin America; discussion of selected case and cross-national studies with theoretical importance. Prereq: Not open to students with credit for 741.			
<b>7260</b>	<b>Authoritarian Politics</b>	<b>G</b>	<b>3</b>
Familiarizes students with basic theoretical and empirical approaches to the study of authoritarian politics; introduces classic and cutting edge research.			
<b>7280</b>	<b>Comparative Political Economy</b>	<b>G</b>	<b>3</b>
A graduate-level course designed to survey contemporary theories on the interaction between economic policies, domestic institutions, the international economy, and their consequences on the macroeconomy. Prereq: Not open to students with 1 completion for 7280 (735). Repeatable to a maximum of 6 cr hrs. Cross-listed in Econ 6745.			
<b>7281</b>	<b>The Political Economy of Income Inequality, Volatility, and Mobility</b>	<b>G</b>	<b>3</b>
Examines patterns, political and institutional foundations, and consequences of income inequality, volatility, and mobility, plus dynamic aspects of income distributions. Prereq: Not open to students with credit for 781.			
<b>7300</b>	<b>Theories of International Relations</b>	<b>G</b>	<b>3</b>
Examination of such basic concepts and theories as equilibrium models, balance of power, national interest, geopolitical configurations. Prereq: Not open to students with credit for 745.			
<b>7310</b>	<b>Security Policy</b>	<b>G</b>	<b>3</b>
Theories of conflict and war causation and an assessment of their durability in a new era of world politics. Prereq: Not open to students with credit for 752.			
<b>7312</b>	<b>Critical Security Studies</b>	<b>G</b>	<b>3</b>
Introduces students to the Political Science subfield of Critical Security Studies (CSS). Prereq: Not open to students with credit for 8194.03 (Sp15, Critical Security).			

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<b>7315</b>	<b>Conflict and Peace</b>	<b>G</b>	<b>3</b>
Sources and types of social conflict with special attention to international violence; causes of war; their avoidance and control. Prereq: Not open to students with credit for 751.			
<b>7317</b>	<b>Consequences of War</b>	<b>G</b>	<b>3</b>
Examines theoretical and empirical literature in Political Science on war, peace, and security with focus on the legacies of war.			
<b>7334</b>	<b>International Organization: Rationalist Approaches</b>	<b>G</b>	<b>3</b>
Comprehensive view of international governmental, non-governmental, and business organizations; their roles in solving problems such as poverty, war, pollution; particular attention to the United Nations system. Prereq: Not open to students with credit for 759.			
<b>7336</b>	<b>International Order</b>	<b>G</b>	<b>3</b>
Discussion of the leading books written on the subject of international order.			
<b>7340</b>	<b>Social Theories of International Relations</b>	<b>G</b>	<b>3</b>
An examination of the main themes, debates, and social theories of world politics. Prereq: Not open to students with credit for 748.			
<b>7375</b>	<b>Quantitative Studies of International Security</b>	<b>G</b>	<b>3</b>
Survey of quantitative empirical studies of war, civil war, militarized disputes, and conflict. Prereq: 7553 (786). Not open to students with credit for 849.			
<b>7380</b>	<b>Theories of International Political Economy</b>	<b>G</b>	<b>3</b>
Contemporary literature in international political economy; its ties to classical schools of thought in international relations and political economy; points of contention between them. Prereq: Not open to students with credit for 753.			
<b>7400</b>	<b>Fundamental Concepts in Political Theory</b>	<b>G</b>	<b>3</b>
A graduate survey of the scope, concepts, and methods of political theory, examining important debates throughout political science through works of both canonical and contemporary thinkers. Prereq: Not open to students with credit for 763.			
<b>7410</b>	<b>Radical Cosmopolitanism</b>	<b>G</b>	<b>3</b>
The notion of cosmopolitanism has enjoyed renewed interest among political and critical theorists. This course engages critically with Immanuel Kant's classic account and examines its roots and anthropological commitments seriously and puts it in dialogue with colonial and post-colonial intellectuals, including W. E. B. Du Bois who thought systematically about justice beyond the nation. Prereq: Not open to students with credit for 7499 (Au 2015).			
<b>7499</b>	<b>Selected Topics in Political Theory</b>	<b>G</b>	<b>3</b>
Intensive joint readings and discussions concentrating upon one of the major themes, problems, or movements in political theory; topic information available from instructor. Prereq: Not open to students with credit for 766.			
<b>7551</b>	<b>Quantitative Political Analysis: I</b>	<b>G</b>	<b>3</b>
Explication, interpretation, and application of techniques for quantitative analysis of political data; descriptive and inferential statistics, with emphasis on bi-variate analysis. Prereq: Not open to students with credit for 685.			
<b>7552</b>	<b>Quantitative Political Analysis: II</b>	<b>G</b>	<b>3</b>
Descriptive and inferential statistics with emphasis on multivariate analysis; additional topics offered as desired and possible: scaling, index construction, sampling, measurement reliability. Prereq: 7551. Not open to students with credit for 686.			
<b>7553</b>	<b>Quantitative Political Analysis: III</b>	<b>G</b>	<b>3</b>
A continuation of subjects begun in 7552, including such topics as scaling, index construction, sampling, and measurement reliability. Prereq: 7551 and 7552. Not open to students with credit for 786.			
<b>7555</b>	<b>Causal Mechanisms</b>	<b>G</b>	<b>3</b>
A survey of causal mechanisms in political science, including models of processes, equilibration, optimization, learning, integration, aggregation, evolution, complexity, and universal, contextual, and synthetic models.			
<b>7560</b>	<b>Inferential Network Analysis</b>	<b>G</b>	<b>3</b>
This course presents inferential statistical models for network data in detail. The course will integrate theoretical discussions with practical examples and software code to perform analyses.			
<b>7681</b>	<b>Formal Theories of Politics I</b>	<b>G</b>	<b>3</b>
Major approaches used in modeling politics, including social choice, game theory, and probability models. Prereq: Not open to students with credit for 680.			
<b>7700</b>	<b>Foundations of Political Psychology</b>	<b>G</b>	<b>3</b>
Overview of the field of political psychology; causes, dynamics, and consequences of human thinking and action in politics. Prereq: Not open to students with credit for 806.			

<b>7702</b>	<b>Survey and Questionnaire Design</b>	<b>G</b>	<b>3</b>
Theories of the survey research response process and their implications for question wording and question order effects. Prereq: Not open to students with credit for 702.			
<b>7720</b>	<b>Political Psychology and International Relations</b>	<b>G</b>	<b>3</b>
A seminar introducing students to theories of international relations that employ psychological perspectives; cognitive world views and political identity, especially nationalism, receive special attention. Prereq: Not open to students with credit for 761.			
<b>7780</b>	<b>Political Science Research Methods</b>	<b>G</b>	<b>3</b>
Introduction to political science research with emphasis on survey and experimental designs, data generation techniques, data processing, and computer utilization. Prereq: Not open to students with credit for 684.			
<b>7781</b>	<b>Text as Data</b>	<b>G</b>	<b>3</b>
Social interaction and conflict comprises the artful (and sometimes painfully in-artful) use of language. This course explores emerging statistical methods for extracting important signals from language stored as text. Topics include text collection and processing; dictionary methods; topic modeling; document clustering; deep learning; and concomitant computational and mathematical challenges.			
<b>7785</b>	<b>Experimental Design</b>	<b>G</b>	<b>3</b>
Experimental methods appropriate for research in political psychology. Prereq: Not open to students with credit for 805.			
<b>7788</b>	<b>Selected Topics in Political Methodology</b>	<b>G</b>	<b>3</b>
An intensive examination of special topics in political methodology. Repeatable to a maximum of 12 cr hrs.			
<b>7888</b>	<b>Field Research Methods</b>	<b>G</b>	<b>3</b>
This seminar introduces students to various field methods for developing and testing theories in political science.			
<b>7905</b>	<b>Political Institutions</b>	<b>G</b>	<b>3</b>
This class is an entry-level graduate class into the study of political institutions. The class aims to provide an overview of the field and a foundation upon which students can begin to teach themselves additional works in this literature.			
<b>8000</b>	<b>Writing and Publishing in Political Science</b>	<b>G</b>	<b>3</b>
Students work on a pre-existing draft of a paper and develop a polished piece of research suitable for journal submission.			
<b>8194.01</b>	<b>Contemporary Political Problems: US</b>	<b>G</b>	<b>3</b>
Group studies to examine specific contemporary problems in American politics. Repeatable to a maximum of 21 cr hrs.			
<b>8194.02</b>	<b>Contemporary Political Problems: Comparative</b>	<b>G</b>	<b>3</b>
Group studies to examine specific contemporary problems in comparative politics. Repeatable to a maximum of 21 cr hrs.			
<b>8194.03</b>	<b>Contemporary Political Problems: International</b>	<b>G</b>	<b>3</b>
Group studies to examine specific contemporary problems in international politics. Repeatable to a maximum of 21 cr hrs.			
<b>8194.04</b>	<b>Contemporary Political Problems: Political Theory</b>	<b>G</b>	<b>3</b>
Group studies to examine specific contemporary problems in political theory. Repeatable to a maximum of 21 cr hrs.			
<b>8194.05</b>	<b>Contemporary Political Problems: Methodology</b>	<b>G</b>	<b>3</b>
Group studies to examine specific contemporary problems in political-science methodology. Repeatable to a maximum of 21 cr hrs.			
<b>8194.06</b>	<b>Contemporary Political Problems</b>	<b>G</b>	<b>3</b>
Group studies to examine specific contemporary political problems. Repeatable to a maximum of 21 cr hrs.			
<b>8781</b>	<b>Research in American Politics</b>	<b>G</b>	<b>3</b>
Development and execution of a research design on a selected topic in American politics; consultation on substantive and methodological problems offered by faculty. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>8782</b>	<b>Comparative Politics Research Seminar</b>	<b>G</b>	<b>3</b>
Research seminar on various topics in comparative politics. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>8783</b>	<b>Research in International Politics</b>	<b>G</b>	<b>3</b>
Research seminar on various topics in international politics. Prereq: Not open to students with 12 cr hrs for 846. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>8784</b>	<b>Research in Political Theory</b>	<b>G</b>	<b>3</b>
Research seminar in political theory. Prereq: Not open to students with 12 cr hrs for 866. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			

**8999 Dissertation Research in Political Science** G 1 - 12

Research for dissertation purposes only.  
Repeatable. This course is graded S/U.

## Portuguese

**1101.01 Portuguese I** U 4

Development of listening, reading, speaking, and writing skills in cultural contexts. Both classroom-based and 100% online sections available each semester. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: Not open to students with credit for 1102.01 or 1103.01 or equiv. This course is available for EM credit. GE for lang course.

**1102.01 Portuguese II** U 4

Development of listening, reading, speaking, and writing skills in cultural contexts. Both classroom-based and 100% online sections available each semester. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1101.01 or 1101.51. Not open to students with credit for 1102.51 or 5501. This course is available for EM credit. GE for lang course.

**1103 Portuguese III** U 4

Continued development of listening, reading, speaking, and writing skills in cultural contexts. Both classroom-based and 100% online sections available each semester. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1102.01. Not open to students with credit for 5501 or 5502. This course is available for EM credit. GE for lang course.

**2193 Individual Studies** U 1 - 9

Independent study for subject matter not covered in regularly offered courses.  
Prereq: Permission of instructor. Repeatable to a maximum of 59 cr hrs or 59 completions. This course is graded S/U.

**2194 Group Studies** U 1 - 9

Group Studies.  
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.

**2330 Introduction to Brazilian Culture** U 3

Integrated, multidisciplinary overview of modern Brazilian culture in terms of its visual, plastic, musical, literary, dramatic, and popular arts within socio-economic and political context.  
Prereq: Not open to students with credit for Portgese 330. GE cultures and ideas and diversity global studies course.

**2331 Portuguese Culture and Society** U 3

Examines Portuguese culture, taking into account intersections with other cultural contexts (e.g., in Europe, Africa, Asia, and the Americas). Taught in English.  
Prereq: Not open to students with credit for Portgese 331. GE cultures and ideas and diversity global studies course.

**2335 Cannibal Brazil: Cultural Encounters and Negotiations of Identity in Literature and Culture** U 3

Explores a fundamental topic within Brazilian culture, from colonial times to present; cannibalism as cultural practice in both literal and discursive realms.  
Prereq: Not open to students with credit for 335. GE VPA course.

**2797 Topics in Foreign Study** U 1 - 9

Credit from study abroad for courses not offered by department at the GE level. Courses may be taught in Portuguese or English.  
Prereq: Permission of departmental study abroad advisor. Repeatable.

**2798.10 Contemporary Issues in Brazil: Cultural, Environmental, & Racial Politics in the SE & NE Regions** U 3

Consists of lectures on special topics by the faculty of University of the UNESP-SJRP, and of ACBEU/Salvador, fieldtrips, and survival Portuguese classes. In Salvador, the course will explore some of the contemporary advances and challenges of the people of Bahia Brazil socially, culturally and environmentally.  
GE education abroad course.

**3401 Advanced Portuguese Grammar** U 3

In-depth examination of difficult points of Portuguese grammar; emphasis on comprehension of key grammatical concepts in the language. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: Portgse 1103.01 (Portgese 103.01 and 104.01) or 5502 (502), or equiv, or permission of instructor. Not open to students with credit for Portgese 401.

**3402 Portuguese Reading and Listening** U 3

Development of students' reading and listening skills through newspapers, magazines, radio and TV stories, and newscasts. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: Portgse 1103.01 (Portgese 104) or 5502 (502), or permission of instructor. Not open to students with credit for Portgese 402.

**3403 Portuguese Conversation and Composition** U 3

Intensive practice in conversation and composition based on short stories written by Lusophone authors with review of grammar. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: Portgse 1103.01 (Portgese 103.01 and 104.01) or 5502 (502), or equiv, or permission of instructor. Not open to students with credit for Portgese 202 or 403.

**3450 Introduction to the Study of Literatures and Cultures** U 3

Strategies for reading and extensive practice in analyzing literary and cultural texts from the Portuguese-speaking world.  
Prereq: Portgse 3401 (Portgese 401), 3402 (402), 3403 (403) or 5502 (502), or permission of instructor. Not open to students with credit for Portgese 450.

**3570 CLLC Radio** U 3

Student partners prepare 3 target language broadcasts, each 1 hour in length. Broadcasts stream live over the Internet, then become podcast for public use. Student "DJs" conduct target language research on radio broadcast history and at least 15 thematic topics and related music that interests them. Students choose their music and content with approval and guidelines, then produce scripts.  
Prereq: Permission of instructor.

**4193 Individual Studies** U 1 - 9

Individual studies.  
Prereq: Portgese 3401 (Portgse 401), 3402 (402), 3403 (403); or 5502 (502) and Grad standing; or permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.

**4194 Group Studies** U 1 - 9

Topics vary.  
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.

**4510 Portuguese Translation** U 3

Advanced practice in Portuguese-to-English translation based primarily on the contemporary written Portuguese of Brazil and Portugal; emphasis on formal grammar and style.  
Prereq: Portgse 3401 (Portgese 401), or permission of instructor. Not open to students with credit for Portgese 510.

**4550 Literatures of the Portuguese Speaking World** U 3

In-depth study of a major topic or problem in the literatures and cultures of the Portuguese-speaking world (Portugal, Brazil, Lusophone Africa and Lusophone Asia).  
Prereq: 3450 (450) with a C- or better; or 5502 (502) and Grad standing; or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**4560 Cultural Expressions of Portugal and Lusophone Africa** U 3

The culture of Portugal and Portuguese Africa from their founding to the present through the study of selected Portuguese-language literature, news, and film.  
Prereq: Portgse 3450 (Portgese 450); or 5502 (502), and Grad standing; or permission of instructor. Not open to students with credit for Portgese 560.

**4595 Special Topics in Foreign Study** U 1 - 9

Credit from study abroad for courses not offered by department but eligible for Portuguese major core. Arranged only with permission of Departmental study abroad adviser.  
Prereq: Portgse 3450 (Portgese 450); or 5502 (502), and Grad standing; or permission of instructor. Used only to convert Portgse 5797 (Portgese 697) credit to more appropriate level. Repeatable to a maximum of 59 cr hrs or 16 completions.

**4597.01 Coloniality and Postcoloniality in the Literatures of Portugal and Portuguese-Speaking Africa** U 3

Focuses on literary representations of the Portuguese colonial experience in Africa in Portuguese and African texts, and their contribution to understanding contemporary postcolonial issues.  
Prereq: English 110. Not open to students with credit for Portgese 597.01. GE diversity global studies and cross-disciplinary seminar course.

**4597.02 Representing Identity in the Cinema of the Portuguese-Speaking World** U 3

How film in the contemporary Portuguese-speaking world (e.g., Brazil, Portugal, Angola) reflects on race, ethnicity, multiculturalism, and transnational contact.  
Prereq: English 110. Not open to students with credit for Portgese 597.02. GE diversity global studies and cross-disciplinary seminar course.

**4798 Study Tours** U 1 - 9

Study Tour.  
Prereq: Permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.

**4998H Honors Research** U 1 - 9

Honors research.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.

**4999 Research for Thesis** U 1 - 9

Undergraduate research for thesis.  
Prereq: Permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.

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<b>4999H</b>	<b>Research for Honors Thesis</b>	<b>U</b>	<b>1 - 9</b>
Topics vary based on research interests. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.			
<b>5501</b>	<b>Portuguese for Spanish Speakers I</b>	<b>U G</b>	<b>3</b>
Rapid introduction to Portuguese language intended for students with at least high intermediate-level Spanish skills. Undergraduate and Graduate students with high-intermediate to advanced language skills in other Romance Languages may seek instructor permission to enroll. Prereq or concur: Spanish 3401, 3403, 3404, or 3413, or equiv, or permission of instructor. Not open to students with credit for Portgse 1101.01, 1102.01, 1103.01, or equiv. GE for lang course			
<b>5502</b>	<b>Portuguese for Spanish Speakers II</b>	<b>U G</b>	<b>3</b>
Continuation of 501; Portuguese language for students with at least intermediate-level Spanish skills. Prereq: 5501 (501). Not open to students with credit for 1101.01 (101.01), 1102.01 (102.01), 1103.01 (103.01) and 104.01, or equiv.			
<b>5510</b>	<b>Literatures and Cultures in Portuguese, From the Middle Ages to Neoclassicism</b>	<b>U G</b>	<b>3</b>
Overview of literature and culture in the Portuguese-speaking world from the twelfth to the eighteenth centuries. Prereq: 3450 (450) with a C- or better, or Grad standing; or permission of instructor.			
<b>5520</b>	<b>Literatures and Cultures in Portuguese, from Romanticism to Modernism</b>	<b>U G</b>	<b>3</b>
Overview of literatures and cultures of the Portuguese-speaking world in the nineteenth to the early twentieth centuries. Prereq: 3450 (Portgese 450) with a C- or better, or Grad standing; or permission of instructor.			
<b>5530</b>	<b>Literatures and Cultures in Portuguese, from Modernism to the Present</b>	<b>U G</b>	<b>3</b>
Overview of literatures and cultures of the Portuguese-speaking world in the early twentieth to the twenty-first centuries. Prereq: 3450 (Portgese 450) with a C- or better, or Grad standing; or permission of instructor.			
<b>5611</b>	<b>The Portuguese Language</b>	<b>U G</b>	<b>3</b>
Focus on the diversity of Portuguese. Examines the principal areas of linguistic variation in Portuguese and the main dialect differences between Brazil and Portugal. Students conduct basic analyses of linguistic data using computerized corpus tools for hypothesis-testing. Taught in Portuguese. Prereq: 3401 (401); or 5502 (502) and Grad standing; or permission of instructor. Not open to students with credit for Portgese 611.			
<b>5650</b>	<b>Studies in Literatures and Cultures of the Portuguese-Speaking World</b>	<b>U G</b>	<b>3</b>
Intensive exploration of a specific topic or problem; topic varies, for example: modern Brazilian novel, Luso-African literature, Portuguese poetry since 1974. Prereq: 3450 (P450) and one 4500 (500) level literature and/or culture course; or 5502 (502) and Grad standing; or permission of instructor. Not open to students with credit for 650. Repeatable to a maximum of 9 cr hrs.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Repeatable.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Individual studies. Prereq: Permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 9</b>
Group studies. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>6999</b>	<b>Research for Thesis</b>	<b>G</b>	<b>1 - 9</b>
Research for thesis. Prereq: Permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.			
<b>7440</b>	<b>Cinema of the Portuguese-Speaking World</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in the cinema of the Portuguese-speaking world (Portugal, Brazil, Lusophone Africa, and Lusophone Asia). Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7500</b>	<b>Studies in Literatures and Cultures of the Portuguese-Speaking World</b>	<b>G</b>	<b>3</b>
In-depth study of topics in the literatures and cultures of Brazil, Portugal, Lusophone Africa, and Lusophone Asia. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			

**8193.01 Individual Studies** **G** **1 - 9**

Independent Study of a focused problem or topic in the literatures and cultures of the Portuguese-speaking world.  
Prereq: Permission of instructor. Repeatable. This course is progress graded S/U.

**8193.02 PhD Exam Preparation** **G** **1 - 9**

Independent Study to prepare for upcoming PhD examination.  
Prereq: Permission of instructor. Repeatable to a maximum of 99 cr hrs. This course is graded S/U.

**8194 Group Studies** **G** **1 - 3**

Group study of focused problems and topics in the literatures and cultures of the Portuguese-speaking world.  
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions.

**8500 Seminar in Literatures and Cultures of the Portuguese-Speaking World** **G** **3**

Detailed exploration of advanced issues in the literatures and cultures of Brazil, Portugal, Lusophone Africa and Lusophone Asia.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs.

**8999 Research for Dissertation (Post-candidacy)** **G** **1 - 12**

Research for dissertation (post-candidacy).  
Prereq: Post-candidacy status, and permission of faculty advisor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.

## Psychiatry and Behavioral Health

**2000 Introduction to Psychiatry in Healthcare** **U** **3**

This course will introduce you to a variety of behavioral health professions within the context of the broader healthcare system, and cultivate your understanding of the unique and interdisciplinary functions that professionals play.

**4193 Research Study in Clinical Neuropsychology** **U** **1 - 10**

This course provides for individualized study in the field of clinical neuropsychology. This independent study course will allow the opportunity to obtain research skills & knowledge by working in a laboratory setting within a neuropsychology clinic.  
Prereq: Psych 2220 and 2300, or permission of instructor. This course is graded S/U.

**4998 Undergraduate Research in Psychiatry and Behavioral Health** **U** **1 - 10**

This course provides an opportunity for research in the fields of psychiatry, behavioral neuroscience, psychoneuroimmunology, and cancer. This course will allow students the opportunity to obtain research skills and knowledge by working in a laboratory setting.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

## Psychology

**1100 Introduction to Psychology** **U** **3**

A prerequisite to advanced courses; a broad survey of psychological science. Application of the scientific method to the empirical study of behavior with emphasis on individual and cultural differences.

Prereq: Not open to students with credit for 100, 1100H (100H) or 1100E (100E). This course is available for EM credit. GE soc sci indivs and groups and diversity soc div in the US course.

**1100E Introduction to Psychology** **U** **3**

A prerequisite to advanced courses; a broad survey of psychological science. Application of the scientific method to the empirical study of behavior with emphasis on individual and cultural differences.

Prereq: Honors standing, or permission of instructor. Not open to students with credit for 1100 (100), 1100H (100H), or 100E. GE soc sci indivs and groups and diversity soc div in the US course.

**1100H Introduction to Psychology** **U** **3**

A prerequisite to advanced courses; a broad survey of psychological science. Application of the scientific method to the empirical study of behavior with emphasis on individual and cultural differences.

Prereq: Honors standing, or permission of instructor. Not open to students with credit for 1100 (100), 1100E (100E), or 100H. GE soc sci indivs and groups and diversity soc div in the US course.

**1300 Professional Development in Psychology** **U** **1**

Professional Development in Psychology will provide students with information and skills to be successful as a psychology major and plan a career in psychology or a psychology-related field. Students will learn about the various resources available at the university to support their success in psychology and the options available to them following their undergraduate education.  
Prereq: Psych major.

**2220 Data Analysis in Psychology** **U** **3**

Discussion of statistical analysis of psychological data - random samples, graphical and numerical techniques of descriptive statistics, correlation, regression, probability, sampling distribution, and hypothesis testing.  
Prereq: 1100 or 1100H, and Stat 1450, Math 1130, 1148, 1149, 1150, or 1151, or equiv, or Math Placement Level M or higher; or permission of instructor.

## Psychology 387

### 2220E Data Analysis in Psychology U 3

Discussion of statistical analysis of psychological data - random samples, graphical and numerical techniques of descriptive statistics, correlation, regression, probability, sampling distribution, and hypothesis testing.  
Prereq: Honors standing, and 1100 or 1100H, and Stat 1450, Math 1130, Math 1148, 1149, 1150, 1151, or equiv, or Math Placement Level M or higher; or permission of instructor. Not open to students with credit for 2220 or 2220H.

### 2220H Data Analysis in Psychology U 3

Discussion of statistical analysis of psychological data - random samples, graphical and numerical techniques of descriptive statistics, correlation, regression, probability, sampling distribution, and hypothesis testing.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H), and Stat 1450 (145), Math 1130, Math 1148 (148), Math 1149, 1150 (150), 1151 (151), or 152, or equiv, or Math Placement Level M or higher; or permission of instructor. Not open to students with credit for 2220 (220), 2220H, 320, or 320H.

### 2300 Research Methods in Psychology U 3

An overview of issues, methods, and techniques of scientific psychological research. Students must be pursuing majors or minors in Psychology.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 300.

### 2301 Psychology of Extraordinary Beliefs U 3

Considers beliefs in extraordinary phenomena through the application of the findings and principles of psychological science.  
Prereq: Not open to students with credit for 301.

### 2303 Positive Psychology U 3

Introduction to the field of positive psychology. Topics include positive affect, subjective well-being, optimism, psychological strengths, emotional intelligence, compassion, humor, and spirituality.  
Prereq: Not open to students with credit for Psych 303.

### 2311 Psychology of Motivation U 3

A survey of major approaches to motivation and the study of important concepts in motivation, with emphasis on everyday applications.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 311.

### 2333 Psychology of Human Sexuality U 3

Overview of the psychology of human sexuality including the nature and variety of human sexual experience, theories and therapies regarding sexual issues.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 333.02.

### 2350 Contemporary Developmental Psychology U 3

A survey course acquainting students with issues resulting from the social changes of the past decade and from an increased interest in the life span.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 350.

### 2367.01 Social Psychology U 3

Survey of group processes as they affect individual behavior; topics include individual motivation, group behavior, attitudes, and perception of self and others.  
Prereq: 1100 (100) or 1100H (100H), and English 1110.01, 1110.01H, 1110.02, 1110.02H, 1110.03, 110, or 111, or equiv, and Soph standing or above. Not open to students with credit for 3325 (325), 3325H (325H), or 367.01. GE writing and comm: level 2 and soc sci indivs and groups course.

### 2367.02 Abnormal Psychology Analysis U 3

Major psychological disorders, such as anxiety, mood, & personality disorders, will be clinically described & diagnostically defined. Students will compare & contrast symptoms of psychological disorders with non-disordered behaviors, cognitions, & affects. The emphasis is on critical thinking & analysis of theories, research methods, & empirical findings regarding psychopathology & its treatment.  
Prereq: 1100 (100) or 1100H (100H), and English 1110.01, 1110.01H, 1110.02, 1110.02H, 1110.03, 110, 111, or equiv; and Soph standing or above. Not open to students with credit for 3331 (331) or 3331H (331H). GE writing and comm course: level 2.

### 2376 Interpersonal Relationships U 3

Surveys the scientific literature on interpersonal relationships, including family, friends, and romantic partnerships.

### 2389 Career Exploration in Psychology U 3

Designed for psychology majors to explore career paths of interest, as well as facilitate vocational development and acquisition of career search skills. Credit does not apply to hours in the psychology major.  
Prereq: 1100 (100) or 1100H (100H), and enrollment in Psych major. Not open to students with credit for 389.

### 2420 Psychology Applied to Sport U 3

Psychological factors that influence sport participation and performance; psychological techniques to enhance performance; psychological problems associated with sport.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 420.

### 2462 Psychology of Creativity U 3

A critical examination of conceptual, theoretical, and methodological problems related to the systematic study of creativity; special attention to background factors related to creative behavior.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 462 or 662.

### 2500 Applied Psychology: Human Behavior in the Wild U 3

Examines how psychological concepts & phenomena are applied in real world contexts, such as law, medicine, social communities, education, sports, business & engineering. It will introduce constructs & research in applied psychology with a focus on domains not covered in traditional intro psych courses. Practicum sessions will be used for student discussion & interactive activities.  
GE soc sci indivs and groups and diversity soc div in the US course.

### 3191 Internship in Psychology U 1 - 12

Provides psychology majors with an opportunity to intern in a professional setting to integrate academic knowledge with experience in the world of work. Maximum 3 credit hours may be applied to the undergraduate Psychology major.  
Prereq: 1100 or 1100H, and GPA 2.8 or above, and enrollment in Psych, and permission of instructor. This course is graded S/U.

### 3193.01 Individual Studies in Psychology U 1 - 5

Specialized academic project by individualized agreement between instructor and student. Maximum 3 credit hours may be applied to the undergraduate major in psychology.  
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 4 completions. This course is graded S/U.

### 3193.02 Individual Studies: Teaching of Psychology U 1 - 3

Specialized study & experience in teaching of psychology. Classroom management, development of presentation materials & skills, demonstrations & active learning, & assessment. Maximum of 3 cr hrs may be applied to undergrad major in psychology.  
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 6 completions. This course is graded S/U.

### 3194 Group Studies U 3

Various topics within the field of psychology.  
Prereq: 1100 (100) or 1100H (100H). Repeatable to a maximum of 6 cr hrs.

### 3302 Perception and Language U 3

Foundational issues in perceptual and cognitive psychology will be covered in the context of human language, examining communication via the eyes, ears, and hands.  
Prereq: 1100 (100) or 1100H (100H), or permission of instructor. Not open to students with credit for 302.

### 3310 Sensation and Perception U 3

Examination of how observers perceive their environment through sensory information; emphasis on major sensory systems including vision, audition, spatial orientation, touch, taste, and olfaction.  
Prereq: 1100 or 1100H.

### 3310H Sensation and Perception U 3

Examination of how observers perceive their environment through sensory information; with an emphasis on vision and audition.  
Prereq: Honors standing, and 1100, 1100H, or 1100E. Not open to students with credit for 3310 (310).

### 3312 Memory and Cognition U 3

An introduction to experimental study of human memory and cognition.  
Prereq: 1100 or 1100H.

### 3313 Introduction to Behavioral Neuroscience U 3

Introduction to the structure and function of the nervous system in relation to behavior.  
Prereq: 1100 or 1100H.

### 3313H Introduction to Behavioral Neuroscience U 3

Introduction to the structure and function of the nervous system in relation to behavior.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H). Not open to students with credit for 3313 (313).

### 3321 Quantitative and Statistical Methods in Psychology U 3

A concentrated examination of applications of statistical tools in inference in contemporary psychology; hypothesis testing, regression, correlation, and analysis of variance.  
Prereq: 1100 (100) or 1100H (100H), and a grade of B or above in 2220 (220) or 2220H (220H). Not open to students with credit for 321 or 321H.

### 3321H Quantitative and Statistical Methods in Psychology U 3

A concentrated examination of applications of statistical tools in inference in contemporary psychology; hypothesis testing, regression, correlation, and analysis of variance.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H), and a grade of B or above in 2220 (220) or 2220H (220H). Not open to students with credit for 321 or 321H.

### 3325 Introduction to Social Psychology U 3

An introduction to research in social psychology; topics include individual motivation, group behavior, attitudes, and perception of self and others.  
Prereq: 1100 or 1100H. Not open to students with credit for 2367.01 or 3325H.

### 3325E Introduction to Social Psychology U 3

An in-depth, empirically based introduction to research in social psychology; topics include individual motivation, group behavior, attitudes, and perception of self and others.  
Prereq: Honors standing, and 1100 or 1100H. Not open to students with credit for 2367.01 or 3325.

## 388 Psychology

**3325H Introduction to Social Psychology** U 3

An in-depth, empirically based introduction to research in social psychology; topics include individual motivation, group behavior, attitudes, and perception of self and others.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H); or permission of instructor. Not open to students with credit for 2367.01 (367.01), 3325 (325), or 325H.

**3331 Abnormal Psychology** U 3

Examination of current theories and empirical findings regarding the major forms of psychopathology and treatment.  
Prereq: 1100 or 1100H. Not open to students with credit for 2367.02, 3331H, or 3331E.

**3331E Abnormal Psychology** U 3

Examination of current theories and empirical findings regarding the major forms of psychopathology.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H); or permission of instructor. Not open to students with credit for 2367.02, 3331 (331), 3331H (331H), or 331E.

**3331H Abnormal Psychology** U 3

Examination of current theories and empirical findings regarding the major forms of psychopathology.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H); or permission of instructor. Not open to students with credit for 2367.02, 3331 (331), 3331E (331E), or 331H.

**3335 Psychology of Adjustment** U 3

Examination of psychological concepts and theories related to individual adjustment and adaptation.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 335.

**3335E Psychology of Adjustment** U 3

Examination of psychological concepts and theories related to individual adjustment and adaptation.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 3335 (335).

**3340 Introduction to Life Span Developmental Psychology** U 3

Consideration of theories and research on psychological development across the lifespan; includes consideration of social policies that influence developmental outcomes.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 340, 340H, or 340E.

**3340E Introduction to Life Span Developmental Psychology** U 3

A survey of developmental psychology including some phylogenetic perspective.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H); or permission of instructor. Not open to students with credit for 340, 340H, or 340E.

**3340H Introduction to Life Span Developmental Psychology** U 3

Consideration of theories and research on psychological development across the lifespan; includes consideration of social policies that influence developmental outcomes.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H); or permission of instructor. Not open to students with credit for 340, 340H, or 340E.

**3371 Language and the Mind** U 3

Introduction to psychological processes for producing and understanding speech, the means by which these processes arise in the child, and their bases in the brain.  
Prereq: 1100, Ling 2000, or 5000. Not open to students with credit for 3371H, Ling 3701, or 3701H. GE soc sci indivs and groups course. Cross-listed in Ling 3701.

**3371E Language and the Mind** U 3

Introduction to psychological processes for producing and understanding speech, the means by which these processes arise in the child, and their bases in the brain.  
Prereq: Honors standing, and 1100 or Ling 2000. Not open to students with credit for 3371, 3371H, Ling 3701, 3701E, or 3701H. GE soc sci indivs and groups course. Cross-listed in Ling 3701E.

**3371H Language and the Mind** U 3

Introduction to psychological processes for producing and understanding speech, the means by which these processes arise in the child, and their bases in the brain.  
Prereq: Honors standing, and 1100 (100), 1100H (100H), Ling 2000 (Linguist 201), 2000H (200H), or 4000 (601); or permission of instructor. Not open to students with credit for 3371 (371), 371H, Ling 3701 (Linguist 371), or 3701H (371H). GE soc sci indivs and groups course. Cross-listed in Ling 3701H.

**3375 Stereotyping and Prejudice** U 3

Lectures address experimental research in stereotyping and prejudice; readings focus on historical, cultural, and sociological perspectives on issues related to gender, ethnicity, and social class.  
Prereq: 1100 or 1100H. GE diversity soc div in the US course.

**3513 Introduction to Cognitive Neuroscience** U 3

Examination of the neuroscientific approach to the study of cognition; primary focus on the psychobiology of memory, attention, language, and spatial orientation.  
Prereq: 1100 or 1100H.

**3530 Theories of Personality** U 3

Major theoretical and research orientations in the study of normal and abnormal personality development, with a focus on personality processes.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 530.

**3550 Psychology of Childhood** U 3

Introduction to the major phenomena, methods, theories, and findings of developmental psychology, especially as they apply to infancy and childhood.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 550 or 550H.

**3550H Psychology of Childhood** U 3

Introduction to the major phenomena, methods, theories, and findings of developmental psychology, especially as they apply to infancy and childhood.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H); or permission of instructor. Not open to students with credit for 550 or 550H.

**3551 Psychology of Adolescence** U 3

An examination of the biological, psychological, and social aspects of normal adolescent development.  
Prereq: 1100 (100) or 1100H (100H). Not open to students with credit for 551.

**3551H Psychology of Adolescence** U 3

An examination of the biological, psychological, and social aspects of normal adolescent development.  
Prereq: Honors standing, and 1100 (100) or 1100H (100H). Not open to students with credit for 3551 (551).

**3624 Primate Cognition** U 3

Research about monkeys and apes with emphasis on their learning, arts, memory, curiosity, language, and neuropsychological problems.  
Prereq: 1100 (100) or 1100H (100H), or permission of instructor. Not open to students with credit for 624.

**4305 Introduction to Psychopharmacology** U 3

Introduction to the effects of drugs upon brain function.  
Prereq: A grade of C- or above in 2220, 2300, and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major. Not open to students with credit for 3305, 305, or 597.01.

**4320 Psychological Science of Addiction** U 3

Addiction is studied at many levels, from how drugs affect neurobiological systems to how psychosocial factors play a role in drug addiction. Likewise, accumulating evidence suggests that we need to consider addiction as a brain disease like other medical conditions. Students will learn neurobiological systems and cognitive neuroscience underlying drug addictions.  
Prereq: A grade of C- or above in 2367.02, 3313, or 3331.

**4475 The Self** U 3

Survey of classic and contemporary theory and research on social psychological study of the self, diverse approaches, and various gender, ethnic, and cross-cultural perspectives.  
Prereq: A grade of C- or above in 2220, 2300, and 2367 prior to SU13, 2367.01, 3325, 3325H, or 3375. Not open to students with credit for 475.

**4485 Psychology and the Law** U 3

Contributions of psychological theories to the legal system and the role of mental health professionals in this system.  
Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 485.

**4501 Advanced Behavioral Neuroscience** U 3

Advanced discussion of contemporary issues in behavioral neuroscience, including: synaptic pharmacology, drugs, and behavior, neurodegenerative diseases and the biological bases of psychopathology.  
Prereq: A grade of C- or above in 2200 and 2300, and a grade of B or above in 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major. Not open to students with credit for 501.

**4508 Psychology of Judgment and Decision-Making** U 3

An overview of current models and empirical research on cognitive processes in human decision-making and judgment under risk or uncertainty.  
Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 508 or 4508H (508H).

**4508H Psychology of Judgment and Decision-Making** U 3

An overview of current models and empirical research on cognitive processes in human decision-making and judgment under risk or uncertainty.  
Prereq: Honors standing, and a grade of C- or above in 2220 and 2300. Not open to students with credit for 4508 (508) or 508H.

**4509 Perception of Space and Motion in Sports** U 3

Discussion of cognitive, perceptual, and statistical issues that have special application to performance in sports.  
Prereq: A grade of C- or above in 2220, 2300, and 3310.

**4510 Cognitive Psychology Laboratory** U 3

Training in experimental and quantitative methods in cognitive psychology; laboratory experiments include topics such as memory, perception, and attention.  
Prereq: A grade of C- or above in 2220 and 2300; and a grade of C- or above in 3302, 3310, or 3312; and enrollment in Psych major. Not open to students with credit for 4520.

<b>4511</b>	<b>Psychological Testing</b>	<b>U</b>	<b>3</b>
An overview of theoretical and practical aspects of the assessment and prediction of human behavior; topics include achievement, intelligence, personality, attitudes, interests, and interpersonal relations. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 511 or 597.02.			
<b>4515</b>	<b>Psychology of Emotion</b>	<b>U</b>	<b>3</b>
An examination of emotion focusing on how emotions are interconnected to other basic psychological processes such as cognition, motivation, decision making, and well-being. Prereq: A grade of C- or above in 2220 and 2300.			
<b>4518</b>	<b>Attitudes: Structure, Function, and Consequences</b>	<b>U</b>	<b>3</b>
Survey of theory and evidence related to the structure and functional value of attitudes and their effects on information processing, judgments, and behavior. Prereq: A grade of C- or above in 2220, 2300, and 2367 prior to SU13, 2367.01, 3325, 3325H, or 3375. Not open to students with credit for 518.			
<b>4520</b>	<b>Social Psychology Laboratory</b>	<b>U</b>	<b>3</b>
Training in experimental and quantitative methods in social psychology. Experiments include topics such as attitudes, persuasion, social cognition, and group processes. Prereq: A grade of C- or above in 2220, 2300, and 2367 prior to SU13, 2367.01, 3325, 3325H, or 3375, and enrollment in Psych major. Not open to students with credit for 4510.			
<b>4521</b>	<b>Personnel Psychology</b>	<b>U</b>	<b>3</b>
Overview of theory, method, and practices of personnel psychology: job analysis, recruiting, personnel section, performance appraisal, and training. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 521.			
<b>4522</b>	<b>Organizational Psychology</b>	<b>U</b>	<b>3</b>
Overview of theory, method, and practice of organizational psychology: motivation, job attitudes, leadership, groups, organizational design. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 522.			
<b>4525</b>	<b>Psychology of Personal Security: Global and Local Perspectives</b>	<b>U</b>	<b>3</b>
Surveys the diverse psychological literature on personal security, a key ingredient in psychological well-being. Prereq: 1100. Not open to students with credit for 525.			
<b>4531</b>	<b>Health Psychology</b>	<b>U</b>	<b>3</b>
Introduction to health psychology; health-promoting and health-damaging behaviors; modification of health behaviors; stress and coping; management of illness; stress management strategies. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 531.			
<b>4531S</b>	<b>Health Psychology-Service Learning</b>	<b>U</b>	<b>3</b>
Introduction to health psychology; health-promoting and health-damaging behaviors; modification of health behaviors; stress and coping; management of illness; stress management strategies. Includes service learning component, applying course material within a local community agency. Offered on Lima campus only. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 4531.			
<b>4532</b>	<b>Clinical Psychological Science</b>	<b>U</b>	<b>3</b>
Surveys the scientific foundations of clinical psychological interventions and assessment techniques and considers their implications for the profession of clinical psychology. Prereq: A grade of C- or above in 2220 and 2300; and a grade of C- or above in 2367.02 or 3331.			
<b>4540</b>	<b>Counseling Psychology</b>	<b>U</b>	<b>3</b>
Issues within the field of counseling psychology including assessment, counseling skills, multicultural issues, career, professional, and ethical issues. Prereq: A grade of C- or above in 2220 and 2300; and a grade of C- or above in 2367.02, 3331, 3335, or 3530.			
<b>4543</b>	<b>Psychology of Gender</b>	<b>U</b>	<b>3</b>
An examination of the origins and implications of gender differences and similarities and the role that gender plays in the interpretation of behavior. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 4543E.			
<b>4543E</b>	<b>Psychology of Gender</b>	<b>U</b>	<b>3</b>
An examination of the origins and implications of gender differences and similarities and the role that gender plays in the interpretation of behavior. Prereq: Honors standing, and 2220 and 2300. Not open to students with credit for 4543 (543) or 543E.			
<b>4545</b>	<b>Cross-Cultural Psychology</b>	<b>U</b>	<b>3</b>
Introduction to cross-cultural theories and research in various specialties in psychology (e.g., social, developmental, and counseling psychology). Prereq: A grade of C- or above in 2220 and 2300.			
<b>4552</b>	<b>Psychology of Adult Years</b>	<b>U</b>	<b>3</b>
Theory and research related to adulthood as a sequence of psychological stages involving adjustment and coping behaviors; relationship of adulthood to other life-span stages. Prereq: A grade of C- or above in 2220 and 2300.			

<b>4554</b>	<b>Language Development</b>	<b>U</b>	<b>3</b>
A survey of children's language acquisition, including phonemes, words, morphology, and syntax. Roles for universal grammar, linguistic input, social interaction, and statistical learning are considered. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 4554S.			
<b>4554E</b>	<b>Language Development</b>	<b>U</b>	<b>3</b>
A survey of children's language acquisition, including phonemes, words, morphology, and syntax. Roles for universal grammar, linguistic input, social interaction, and statistical learning are considered. Students will participate in a community literacy program. Prereq: Honors standing, and a grade of C- or above in 2220 and 2300. Not open to students with credit for 4554.			
<b>4554S</b>	<b>Language Development-S</b>	<b>U</b>	<b>3</b>
A survey of children's language acquisition, including phonemes, words, morphology, and syntax. Roles for universal grammar, linguistic input, social interaction, and statistical learning are considered. Students will participate in a local elementary school literacy program. Prereq: A grade of C- or above in 2220 and 2300. Not open to students with credit for 4554.			
<b>4555</b>	<b>Adolescent Sexuality</b>	<b>U</b>	<b>3</b>
An examination of the psychological, biological, and social influences on adolescent sexuality. Prereq: A grade of C- or above in 2220 and 2300.			
<b>4571</b>	<b>Psychology of Developmental Disabilities</b>	<b>U</b>	<b>3</b>
Overview of developmental disabilities including causes, nature, and psychological characteristics; diagnosis and psychometric assessments; and behavioral, psycho-educational, and biological forms of prevention and intervention. 20-hr off-campus practicum req. Prereq: A grade of C- or above in 2220 and 2300.			
<b>4597.01</b>	<b>Contemporary World: Aging, Health, and Psychological Functioning in the Modern World</b>	<b>U</b>	<b>3</b>
Addresses primary psychological, social, physical and economic changes related to aging and ramifications of these changes. Prereq: 1100 (100), 1100H (100H), or 1100E (100E), and Jr or Sr standing; or permission of instructor. Not open to students with credit for 597.03. GE cross-disciplinary seminar course.			
<b>4630</b>	<b>Attitudes and Persuasion</b>	<b>U</b>	<b>3</b>
Overview of the major psychological theories and research in the area of attitudes and persuasion - how people's opinions, beliefs, and evaluations are formed and modified. Prereq: A grade of C- or above in 2220, 2300, and 2367 prior to SU13, 2367.01, 3325, 3325H, or 3375. Not open to students with credit for 630.			
<b>4644</b>	<b>Hormones and Behavior</b>	<b>U</b>	<b>3</b>
Exploration of the interactions among hormones, brain, and behavior through an integrative approach. Prereq: A grade of C- or above in 2220, 2300, and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major. Not open to students with credit for 644 or Neurosc 5644 (644).			
<b>4998</b>	<b>Undergraduate Research in Psychology</b>	<b>U</b>	<b>1 - 5</b>
Supervised collaborative research in psychology. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 8 completions. This course is graded S/U.			
<b>4999.01</b>	<b>Thesis Research I</b>	<b>U</b>	<b>2</b>
Seminar designed to support the writing of the Thesis proposal and data collection, including proposal structure, literature review, research ethics, the IRB process, and data collection methodology. Prereq: Enrollment in Psych, and candidate for degree with research distinction, and permission of department.			
<b>4999.01H</b>	<b>Honors Thesis Research I</b>	<b>U</b>	<b>2</b>
Seminar designed to support the writing of the Honors thesis proposal and data collection, including proposal structure, literature review, research ethics, the IRB process, and data collection methodology. Prereq: Honors standing, and enrollment in Psych major, and candidate for degree with research distinction, and permission of department. Not open to students with credit for 783.01H or 783.02H.			
<b>4999.02</b>	<b>Thesis Research II</b>	<b>U</b>	<b>2</b>
Seminar designed to support data collection/analysis, and writing and defending of the Thesis, including quantitative methods, data interpretation, summary, and presentation, writing results and discussion, poster presentation, and oral defense. Prereq: 4999.01.			
<b>4999.02H</b>	<b>Honors Thesis Research II</b>	<b>U</b>	<b>2</b>
Seminar designed to support data collection/analysis, and writing and defending of the Honors thesis, including quantitative methods, data interpretation, summary, presentation, writing results & discussion, poster presentation, and oral defense. Prereq: Honors standing, and 4999.01H; or permission of instructor. Not open to students with credit for 783.02H or 783.03H.			

## 390 Psychology

**5089 Cognitive Aging, Neurodegeneration, and Neuroplasticity** U G 3

This course will cover changes in adult cognition (emphasis on memory) and the brain (structural and functional MRI) as a result of normal aging and age-related neurodegenerative diseases (such as Alzheimer's disease). The course will also cover factors that contribute to neuroplasticity and may attenuate decline, such as nutrition, fitness, physical activity, exercise, and videogaming.

Prereq: A grade of C- or above in 2220, 2300, and 3313 or 3513; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5194 Group Studies** U G 2 - 3

Topics vary from semester to semester and will be announced at least one month in advance. Prereq: 1100. Repeatable to a maximum of 12 cr hrs or 4 completions.

**5250 Mood Disorders: Classification, Etiology, and Treatment** U G 3

A survey of the mood disorders, including depression, bipolar disorder, and several variants of these disorders. The course examines the mood disorders in depth, covering historical, cross-cultural, diagnostic, developmental, neuroscientific, etiological, and therapeutic issues.

Prereq: Grade of C- or higher in 2220 and 2300, and a grade of C- or higher in one of the following: 2367.02, 3331, 3331H, 3331E, 3335, or 3530; or Grad standing.

**5270 Personality Disorders: Classification, Etiology, and Treatment** U G 3

A survey of research on the classification, etiology, and treatment of personality disorders. In the class, personality disorders will be considered in historical, cross-cultural, developmental, and neuroscientific contexts and current debates will be discussed.

Prereq: A grade of C- or above in 2220 and 2300; and a grade of C- or above in 2367.02 or 3331 or 3335 or 3530.

**5309 Human Motor Control and Learning** U G 3

Processes underlying the performance, learning, and adaptation of movement skills such as walking, running, driving, drumming, golfing, catching, text editing, and social communication. Selective perception, attention, and memory in the context of action. Multi-limb coordination and multi-tasking.

Prereq: A grade of C- or above in 2220 and 2300; or Grad standing; or permission of instructor. Not open to students with credit for 4309.

**5425 Introduction to Functional Magnetic Resonance Imaging** U G 3

A general introduction to the physical bases of Magnetic Resonance Imaging (MRI), the physiological bases and principles of functional MRI, MRI related safety issues, design and analysis of fMRI experiments, and the operation of the Siemens 3T Trio system with hands-on experience.

Prereq: Grad standing, or permission of instructor.

**5505 History of Psychology** U G 3

An introduction to major historical figures, important systems of thought within psychology, historical contexts of the field from subfield of philosophy to the present status as a science and profession. This course will examine the forces and theories influencing methods of investigation, society's relationship to the mentally ill, and key historical and social events that shaped the field.

Prereq: A grade of C- or above in 2220 and 2300, or Grad standing. Not open to students with credit for 4505 or 6809.

**5600 Psychobiology of Learning & Memory** U G 3

Integrate coverage of animal learning and human memory, focusing on three key components of the field: behavioral processes, brain systems, and clinical perspectives.

Prereq: A grade of C- or above in 2220, 2300, and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5601 Comparative Psychology** U G 3

Research on animal behavior by psychologists and ethologists; behavioral differences between species; emphasis on evolutionary and adaptive significance of the mechanisms underlying behavior.

Prereq: A grade of C- or above in 2220, 2300, and 3313; or Grad standing.

**5602 Behavioral Genetics** U G 3

Behavioral genetics is the field of study that examines the role of genetics in animal (including human) behavior. It is highly interdisciplinary, involving contributions from biology, genetics, epigenetics, ethology, psychology, & statistics. The goal is to provide knowledge concerning the interrelationship of genetics & behavior, & its implications for health & human development & education.

Prereq: A grade of C- or above in 2220, 2300, and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5603 Stem Cells and the Brain** U G 3

This course will explore the biology, function and relevance of stem cells for brain and behavior from development through aging. Through lectures and primary research literature, we will discuss what it means to be a neural stem cell, how stem cells shape the brain, and what the role of stem cells might be in brain disorders and mental health.

Prereq: A grade of C- or above in 3313, or Grad standing.

**5604 Sex Differences in the Brain and Behavior** U G 3

Explores sex differences in the brain and behavior. Students will learn the importance of studying both males and females in neuroscience research and critical research and methodological issues in the study of sex differences. The goal of this course is to understand sex differences in a range of cognitive, emotional and social behaviors as well as sex differences in neurobiology of disease and mental disorders.

Prereq: A grade of C- or above in 2220, 2300, and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5606 High-Level Vision** U G 3

Examines the perceptual processes by which humans and other animals are able to obtain knowledge about the three-dimensional environment.

Prereq: A grade of C- or above in 2220, 2300, and 3310; or a grade of C- or above in 3310, a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5608 Introduction to Mathematical Psychology** U G 3

Survey of mathematical and computational modeling in psychology. Topics include psychophysical scaling, information processing, probabilistic choice, signal detection theory, model comparison, and Bayesian graphical modeling.

Prereq: A grade of C- or above in 2300 and 3321; a grade of C- or above in 3321 and a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5612 Introduction to Cognitive Science** U G 3

Cognitive science is an interdisciplinary study of the nature of human thought; psychological, philosophical, linguistic, and artificial intelligence approaches to knowledge representation.

Prereq: A total of 12 cr hrs from any of the following areas: CSE, Ling, Philos, or Psych, or Grad standing, or permission of instructor. Not open to students with credit for 612, CSE 5531 (612), Ling 5612 (Linguist 612), or Philos 5830 (612). Cross-listed in CSE 5531, Ling 5612, and Philos 5830.

**5613H Biological Psychiatry** U G 3

Provides a contemporary overview of the biological bases of several significant psychopathologies, including mood disorders, schizophrenia, and PTSD/dissociative identity disorders.

Prereq: Honors standing; and a grade of C- or higher in Psych 2220, and Psych 2300; and Psych 3313 or Psych 3513, or a grade of B or above in Psych 3313 and Neurosc 3000 and Neuroscience major; or Grad standing.

**5614 Cognitive Neuroscience** U G 3

Neuronal mechanisms of information processing.

Prereq: A grade of C- or above in 2220 and 2300, and 3313 or 3513; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5618 Introduction to Computational Cognitive Neuroscience** U G 3

Introductory survey of neural-network models, emphasizing their neural foundations and applications to perceptions, memory, and language. Hands-on explorations with simulation software. Intended for students with prior programming experience and prior programming experience is required.

Prereq: A grade of C- or above in 2220 and 2300; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5620 Technology, Efficiency, and Happiness** U G 3

Considers various dimensions for evaluating the behavioral effects of any technology: efficiency, safety, time cost, complexity, environmental impact, social impact.

Prereq: 1100, or Grad standing.

**5621 Introduction to Event-Related-Potentials** U G 3

Training to become an independent event-related-potential researcher. Develop skills in experimental programming, application of electrode nets, artifact detection, filtering and component analysis, and localization.

Prereq: A grade of C- or above in 2220 and 2300, and permission of instructor; or Grad standing.

**5622 The Development of Brain and Behavior** U G 3

This course explores the process of brain development from conception through adulthood. The course will cover the basic processes of central nervous system differentiation, how the brain continues to change in infancy, childhood and adolescence, and how environmental variables and experiences shape brain development and program behavior throughout life, in human and animal models.

Prereq: A grade of C- or above in 2220, 2300, and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

**5628 Developmental Cognitive Neuroscience** U G 3

How does the brain change over the first few years of life and how do these changes support changes in cognition? What brain architecture is present when you are born, and how does it change with maturation vs. experience? How does early brain structure and function constrain later learning and plasticity? We will have lectures on foundational studies and discussions of current empirical papers.

Prereq: 3313 or 3513.

**5681 Development and Psychopathology** U G 3

Examines theories and research on psychopathology (e.g., autism) during infancy, childhood, and adolescence from a developmental-contextual perspective; emphasis on description, prevalence, etiology, prognosis, and assessment.

Prereq: A grade of C- or above in 2220, 2300, and 3550; or Grad standing.



<b>5684</b>	<b>Psychology of Delinquency</b>	<b>U G</b>	<b>3</b>
Characterization, risk and protective factors, and treatment of delinquency with emphasis on current theories and research practices. Prereq: A grade of C- or above in 2220, 2300, and 3551; or Grad standing.			
<b>5700</b>	<b>Training in Informal Science Outreach</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to provide students with hands-on training in informal science education at the COSI museum. All students will learn to provide outreach education at the museum; advanced students will develop outreach materials, assist in the visible research operations, and mentor other students. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs. Cross-listed in Ling and EduTL.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 10</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: 1100 (100) and written permission of dept chairperson. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Repeatable to a maximum of 30 or hrs or 10 completions. This course is progress graded.			
<b>5800</b>	<b>Family Psychology</b>	<b>U G</b>	<b>3</b>
This course serves as an advanced introduction to the field of family psychology, including theories, methods, and key findings. Although many topics will be covered throughout the semester, a primary focus will be on parent-child relationships, couple (romantic) relationships, and how family relationships contribute to children's social and emotional development in diverse families. Prereq: A grade of C- or better in 2220 and 2300; or Grad standing.			
<b>5832</b>	<b>Lifespan Sociomoral Development</b>	<b>U G</b>	<b>3</b>
Cognitive, emotional and cross-cultural aspects of moral development and social behavior across the life span. Emphasis on current findings, basic theoretical issues and applied topics (e.g. treatment of antisocial behavior). Prereq: A grade of C- or above in 2220 and 2300; or Grad standing.			
<b>5870</b>	<b>Neuroeconomics and Decision Neuroscience</b>	<b>U G</b>	<b>3</b>
The focus of this course will be on the psychology and neuroscience underlying economic behavior. Discussion will cover various domains of economic decision making and what Neuroeconomics has taught us about them. Prereq: AEDecon 2005, Stats 1450, 2450, Psych 2220, or Econ 3400; and Math 1148 or higher; and Econ 4001.01, 4001.02, 4001.03, AEDecon 4001, Psych 3313, 3513, or 4508. Not open to students with credit for 5870. Cross-listed in Econ.			
<b>5891</b>	<b>Proseminar in Cognitive Science</b>	<b>U G</b>	<b>2</b>
Provides an in-depth examination of cognitive science from an interdisciplinary perspective. Prereq: Permission of instructor. Repeatable to a maximum of 4 or hrs. Cross-listed in CSE, Ling, Philos, and SphHrng.			
<b>5898</b>	<b>Seminar in Behavioral Neuroscience</b>	<b>U G</b>	<b>3</b>
Team-taught seminar on selected topics from contemporary research areas in the field of behavioral neuroscience. Prereq: A grade of C- or above in 4501, and permission of instructor; or Grad standing, and permission of instructor.			
<b>6193.01</b>	<b>Individual Studies: Clinical Psychology</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			
<b>6193.03</b>	<b>Individual Studies: Developmental Psychology</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			
<b>6193.04</b>	<b>Individual Studies: Cognitive Psychology</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			
<b>6193.06</b>	<b>Individual Studies: Quantitative Psychology</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			
<b>6193.07</b>	<b>Individual Studies: Social Psychology</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			
<b>6193.08</b>	<b>Individual Studies: Behavioral Neuroscience</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			
<b>6193.09</b>	<b>Individual Studies: Intellectual and Developmental Disabilities</b>	<b>G</b>	<b>1 - 9</b>
Individual reading or research projects by special agreement between instructor and student. Prereq: Permission of instructor. Repeatable to a maximum of 27 or hrs or 15 completions. This course is graded S/U.			

<b>6609</b>	<b>Introduction to Mathematical Models in Experimental Psychology</b>	<b>G</b>	<b>3</b>
An introduction to cognition with a focus on the application of mathematical models. Topic areas include memory, decision making, categorization, word recognition, priming, and reaction time. Prereq: Not open to students with credit for 609.			
<b>6650</b>	<b>Seminar in Advanced fMRI Analysis Techniques</b>	<b>G</b>	<b>3</b>
For students who have already completed the intro-level fMRI course. We will discuss techniques such as fMR-adaptation, retinotopic mapping, multi-voxel pattern analysis, functional connectivity, representational similarity analysis, real-time fMRI, etc. We will discuss journal articles and experiment ideas applying these techniques. This course is intended for students with prior fMRI experience. Prereq: 5425, or permission of instructor. Repeatable to a maximum of 15 or hrs.			
<b>6652</b>	<b>Empirically Supported Therapies for Children with Developmental Disabilities</b>	<b>G</b>	<b>3</b>
The course will cover empirically-supported treatments from a variety of theoretical orientations, including behavioral, cognitive behavioral, and developmental approaches, as well as process by which therapies gain empirical support and standards by which a therapy is considered empirically supported. Various formats (e.g., individual, group, parent training) interventions will also be covered.			
<b>6700</b>	<b>Introduction to the Language Sciences</b>	<b>G</b>	<b>3</b>
A core course that provides students with a general overview of linguistics and surveys the areas covered by the specialization: Language and Cognition, Language and Brain Function, Language and Society, Language and Technology, and Language Description and Fieldwork. Guest faculty will present in their areas of expertise and students will read and prepare assignments in multiple areas. Prereq: Not open to students with credit for German 6700. Cross-listed in German.			
<b>6809</b>	<b>Historical Development of Psychology</b>	<b>G</b>	<b>3</b>
Development of psychology from the philosophical antecedents to its present status as a science and a profession; assignments in original sources as far as possible. Prereq: Not open to students with credit for 809.			
<b>6810</b>	<b>Statistical Methods in Psychology I</b>	<b>G</b>	<b>4</b>
Basic concepts of descriptive and inferential statistics; includes estimation, hypothesis testing, non-parametric techniques, and analysis of variance. Prereq: 2220 (220), or Grad standing, or permission of instructor. Not open to students with credit for 826 and 827.			
<b>6811</b>	<b>Statistical Methods in Psychology II</b>	<b>G</b>	<b>4</b>
Simple linear regression and correlation, multiple linear regression, interactions; introduction to other related methods such as nonlinear regression and random effects models. Prereq: 6810 (826 and 827), or equiv. Not open to students with credit for 828.			
<b>6820</b>	<b>Introduction to Bayesian Statistics for Psychological Data</b>	<b>G</b>	<b>3</b>
An introduction to Bayesian statistics & data analysis for graduate students in the Dept of Psychology. It reviews basic probability theory & Bayes theorem, provides a broad introduction to inference from the modern Bayesian perspective & contrasts that to more traditional frequentist inference. Topics covered include analysis of proportions & means, interval estimates, regression, & Bayes factors. Prereq: 6810 (828), and enrollment in Psychology.			
<b>6822</b>	<b>Statistical Mediation, Moderation, and Conditional Process Analysis</b>	<b>G</b>	<b>3</b>
The application of principles of linear modeling to exploring questions about mediated (mechanisms) and moderated (conditional) effects. Topics include classic and contemporary approaches to testing mediation and moderation hypotheses, path analysis, indirect and direct effects, probing and plotting interactions, and analytically integrating moderation and mediation analysis. Prereq: 6811 (828) or equiv, or permission of instructor.			
<b>6835</b>	<b>Child Development</b>	<b>G</b>	<b>3</b>
Major developmental aspects of childhood; review of theory, methodology, research studies, and historical and contemporary writing about children; consideration of interdisciplinary approaches. Prereq: Not open to students with credit for 835.			
<b>6849</b>	<b>Research Methods in Developmental Psychology</b>	<b>G</b>	<b>3</b>
A critical survey and evaluation of concepts and techniques in study of developmental psychology. Prereq: Not open to students with credit for 849.			
<b>6850</b>	<b>Ethics and Professional Issues in Psychology of Intellectual and Developmental Disabilities</b>	<b>G</b>	<b>3</b>
Considers ethical questions and dilemmas that psychologists encounter in their everyday practice, research, and teaching. It will take a problem-solving approach to ethical decision-making with students working toward consensus around constructive means for preventing problems, recognizing, approaching, and resolving ethical predicaments in the field of IDD Psychology.			
<b>6851</b>	<b>Seminar on the Teaching of Psychology</b>	<b>G</b>	<b>5</b>
Designed for first-time teachers of psychology; theory, philosophy, ethics, research, course planning and delivery, and practical strategies to promote teaching excellence. Prereq: Grad standing. Not open to students with credit for both 851 and 852.			

## 392 Psychology

<b>6853</b>	<b>Lifespan Developmental Psychopathology I</b>	<b>G</b>	<b>3</b>
Part one of a two-course sequence surveying the major psychopathological disorders across the lifespan from a developmental psychopathology perspective. Prereq: Permission of instructor. Not open to students with credit for 844.01.			
<b>6854</b>	<b>Lifespan Developmental Psychopathology II</b>	<b>G</b>	<b>3</b>
Part two of a two-course sequence surveying the major psychopathological disorders across the lifespan from a developmental psychopathology perspective. Prereq: Not open to students with credit for 854.			
<b>6861</b>	<b>Research Design and Methods in Clinical Psychology</b>	<b>G</b>	<b>3</b>
Introduction to the theory and use of clinical methods in psychology, designed for first-year graduate students in clinical psychology. Prereq: Permission of instructor. Not open to students with credit for 861.			
<b>6863</b>	<b>Psychometrics</b>	<b>G</b>	<b>3</b>
In-depth coverage of classic and contemporary topics in psychological measurement including test construction, reliability, validity, Item Response Theory, and computerized adaptive testing. Prereq: Permission of instructor. Not open to students with credit for 864.06.			
<b>6866</b>	<b>Empirically Supported Treatments</b>	<b>G</b>	<b>2</b>
Examination of current theories and empirical findings regarding the major forms of psychopathology and treatment. Prereq: Permission of instructor. Not open to students with credit for 866.02.			
<b>6867.01</b>	<b>Behavioral Medicine</b>	<b>G</b>	<b>3</b>
Behavioral medicine is an interdisciplinary field that examines health, disease prevention, illness, and disease progression. This course surveys the contributions by health psychologists to behavioral medicine. Topics include prevention, psychological responses to diagnosis and treatment, biobehavioral mechanisms of illness/disease, response to chronic illness, health behaviors, and emerging issues. Prereq: Grad standing in any health related discipline.			
<b>6867.02</b>	<b>Behavioral Medicine-Cancer</b>	<b>G</b>	<b>3</b>
This course provides follow-up to the general offering with a focus on cancer prevention & control. Topics include overview of cancer as an illness, cancer screening, biobehavioral responses to diagnosis & treatment, factors which place patients at risk for poor psychological/health outcomes, psychological interventions, issues relevant to diverse patient groups, & late effects complicating survivorship. Prereq: Grad standing in Psych or any health related discipline.			
<b>6870</b>	<b>Basic Principles of Social Psychology</b>	<b>G</b>	<b>3</b>
An overview of theory and research in experimental social psychology, emphasizing the basic motivational and information processing principles underlying the discipline. Prereq: Grad standing. Not open to students with credit for 870.			
<b>6880</b>	<b>Techniques and Topics in Cognitive Neuroscience</b>	<b>G</b>	<b>3</b>
This course is required for all Cognitive Neuroscience graduate students and for Cognitive Neuroscience concentration students. Students will attend talks given by internal faculty and engage in group discussions about relevant topics and techniques in the field of cognitive neuroscience.			
<b>7187</b>	<b>Introduction to Clinical Practice</b>	<b>G</b>	<b>3</b>
Overview of important topics relevant to the practice of psychology, with the goal of preparing clinical graduate students for their first practicum experience. Topics include ethics and legal statutes, diversity factors, concepts relevant to supervision and consultation, professional development, and common techniques used in therapy and assessment. Prereq: Permission of instructor.			
<b>7188</b>	<b>Practicum in Clinical Psychology</b>	<b>G</b>	<b>1 - 9</b>
Supervised practice in psychological assessment and intervention in the department's psychological services center. Open only to students in clinical psychology. Prereq: Permission of instructor. Repeatable to a maximum of 18 hrs or 6 completions.			
<b>7189</b>	<b>Supervised Field Experience in Psychology</b>	<b>G</b>	<b>1 - 9</b>
Supervised experience, either research or operational, in any agency doing professional psychological work such as a school system, a psychological clinic, an industrial personnel department, or a counseling center. Prereq: Soph standing in Psych, and approval of local staff of area in which student is specializing. Supervised by member of local staff and, in the case of an external placement, some member of the outside agency approved by the Dept of Psychology. Repeatable to a maximum of 18 hrs or 15 completions. This course is graded S/U.			
<b>7695.01</b>	<b>Seminar in Clinical Psychology</b>	<b>G</b>	<b>1 - 3</b>
Seminar in clinical psychology. Prereq: Permission of instructor. Repeatable to a maximum of 15 hrs or 5 completions.			
<b>7695.02</b>	<b>Health Psychology</b>	<b>G</b>	<b>1 - 3</b>
Seminar in health psychology. Prereq: Permission of instructor. Repeatable to a maximum of 15 hrs or 5 completions.			
<b>7695.04</b>	<b>Cognitive</b>	<b>G</b>	<b>1 - 3</b>
Seminar in cognitive psychology. Prereq: Permission of instructor. Repeatable to a maximum of 15 hrs or 5 completions.			

<b>7695.06</b>	<b>Quantitative</b>	<b>G</b>	<b>1 - 3</b>
Seminar in quantitative psychology. Prereq: Permission of instructor. Repeatable to a maximum of 15 hrs or 5 completions.			
<b>7708</b>	<b>Psychology of Judgment and Decision Making</b>	<b>G</b>	<b>3</b>
Introductory graduate course in the psychology of judgment and decision making, including applications to health, law, economics, environmental issues, and social, cognitive, and clinical psychology. Prereq or concur: Grad level course in statistical methods. Not open to students with credit for 708.			
<b>7717</b>	<b>Interdisciplinary Perspective on Developmental Disabilities</b>	<b>G</b>	<b>3</b>
Introduction to the psychosocial, medical, and educational implications of developmental disabilities. Prereq: Permission of instructor. Not open to students with credit for 717.01 or 717.03. Cross-listed in HthRhSc, EducSt, SocWork, Nursing, and SphHrng.			
<b>7718</b>	<b>Interdisciplinary Perspective on Autism Spectrum Disorders</b>	<b>G</b>	<b>3</b>
Teaches the analytical skills necessary to comprehend and formulate an interdisciplinary framework relating to major scientific and theoretical perspectives in autism spectrum disorders. Prereq: Permission of instructor. Not open to students with credit for 717.01 and 717.02. Cross-listed in EducSt, HthRhSc, Social Work, Nursing, and SphHrng.			
<b>7816</b>	<b>Action and Decision Making</b>	<b>G</b>	<b>3</b>
Considers theories of decision making in static and dynamic environments, and theories of action control in dynamic systems (e.g., those involved in driving, sports and music performance). Includes experience with simple dynamic simulations. Prereq: Not open to students with credit for both 815 and 816.			
<b>7820</b>	<b>Fundamentals of Factor Analysis</b>	<b>G</b>	<b>3</b>
Basic Common Factor Model and its application in psychology; model, communality estimation, factor extraction, orthogonal and oblique rotation, factor scores, confirmatory factor analysis, use of computer programs. Prereq: Permission of instructor. Not open to students with credit for 820.			
<b>7821</b>	<b>Covariance Structure Models</b>	<b>G</b>	<b>3</b>
Theory and methods of testing models of covariance structures; general mathematical model, identification, parameter estimation, goodness of fit, model modification, and the use of computer programs such as LISREL. Prereq: 6811 (828) and 7820 (820), or permission of instructor. Not open to students with credit for 830.			
<b>7822</b>	<b>Fundamentals of Item Response Theory</b>	<b>G</b>	<b>3</b>
Basic concepts underlying item response theory; overview of more advanced topics. Prereq: 6811 (828), or permission of instructor. Not open to students with credit for 821.			
<b>7823</b>	<b>Analysis of Repeated Measures and Longitudinal Data</b>	<b>G</b>	<b>3</b>
Review statistical methods for the analysis of repeated measures experiments and longitudinal studies, and investigate the way that participants change over time. Prereq: Permission of instructor. Not open to students with credit for 831.07.			
<b>7840</b>	<b>Practicum I/DD Psychology</b>	<b>G</b>	<b>3 - 6</b>
Observation of children in a representative variety of clinical settings with particular reference to developmental phenomena of growth and behavior; application of research, diagnostic and intervention methodology. Prereq: 2nd yr Grad standing, and permission of instructor. Repeatable to a maximum of 18 hrs or 8 completions. This course is graded S/U.			
<b>7845</b>	<b>Cognitive Development</b>	<b>G</b>	<b>3</b>
Intensive survey of theory and research in cognitive development, including development of perception, language, memory, concepts, reasoning, academic skills, and social cognition. Prereq: Not open to students with credit for 845.			
<b>7847</b>	<b>Language Development</b>	<b>G</b>	<b>3</b>
Survey of language acquisition, including phonemes, words, morphology, syntax. Prereq: Not open to students with credit for 847.			
<b>7858</b>	<b>Seminar in the Assessment of Developmental Disabilities</b>	<b>G</b>	<b>3</b>
Exposes students to relevant issues in the assessment of developmental disabilities. An emphasis is placed on intellectual disability and autism spectrum disorders. Prereq: Permission of instructor. Not open to students with credit for 859.01.			
<b>7864</b>	<b>Psychological Appraisal</b>	<b>G</b>	<b>3</b>
Theories and methods of psychological appraisal; integration of different theories and approaches. Prereq: Permission of instructor. Not open to students with credit for 864.01.			
<b>7871</b>	<b>Social Cognition</b>	<b>G</b>	<b>3</b>
Introduces research in social cognition: the study of the cognitive underpinnings of social behavior and the ways individuals think about our social world. Prereq: 6870 (870), or Grad standing in Psych, or permission of instructor. Not open to students with credit for 871.01.			

<b>7872</b>	<b>Social Motivation</b>	<b>G</b>	<b>3</b>
Survey of Social Psychology. Prereq: 6870 (870), or Grad standing in Psych, or permission of instructor. Not open to students with credit for 871.02.			
<b>7873</b>	<b>Attitudes and Persuasion</b>	<b>G</b>	<b>3</b>
Coverage of key psychological theories and research on attitudes and persuasion - how opinions, beliefs, and evaluations are formed and modified, and how they influence thinking and behavior. Prereq: Grad standing. Not open to students with credit for 630.			
<b>7874</b>	<b>Research Methods in Social Psychology</b>	<b>G</b>	<b>3</b>
Overview of issues in designing and conducting research in social psychology with emphasis on the statistical, internal, external, and construct validity of social psychological research. Prereq: Permission of instructor. Not open to students with credit for both 876.01 and 876.02.			
<b>7893</b>	<b>Seminar in Developmental Psychology</b>	<b>G</b>	<b>1 - 3</b>
Topics in developmental psychology. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.			
<b>7894</b>	<b>Proseminar in Cognitive Psychology</b>	<b>G</b>	<b>2</b>
Topics in cognitive psychology. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs.			
<b>7896</b>	<b>Special Topics in Quantitative Psychology</b>	<b>G</b>	<b>1 - 3</b>
Special topics in quantitative psychology. Repeatable to a maximum of 36 cr hrs or 12 completions.			
<b>7897</b>	<b>Topical Seminar in Social Psychology</b>	<b>G</b>	<b>2</b>
A seminar offering in-depth analysis of a topic of current interest in social psychology. Enrollment is repeatable when the topic changes. Prereq: 6870 (870) or 8877 (875.01), or permission of instructor. Repeatable to a maximum of 16 cr hrs.			
<b>7898</b>	<b>Advanced Seminar in Behavioral Neuroscience</b>	<b>G</b>	<b>1 - 3</b>
Advanced topics in behavioral neuroscience. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 12 completions.			
<b>7899</b>	<b>IDD Seminar: Topics in Developmental Disabilities</b>	<b>G</b>	<b>1</b>
This seminar course will provide students in the doctoral program in intellectual and developmental disabilities psychology with an overview of applied research and policy initiatives conducted by OSU-affiliated faculty and visiting scholars in the field. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.			
<b>7999</b>	<b>Thesis Research in Psychology</b>	<b>G</b>	<b>1 - 15</b>
Research for masters thesis purposes only. Repeatable to a maximum of 60 cr hrs or 8 completions. This course is graded S/U.			
<b>8191</b>	<b>Internship in Psychology</b>	<b>G</b>	<b>0 - 9</b>
Full-time supervised training in an approved predoctoral internship agency; supervision and directed experiences coordinated by student's advisor, program training director, and internship training director. Prereq: PhD candidacy in clinical psychology, an approved dissertation proposal, and written permission of advisor. Repeatable to a maximum of 36 cr hrs or 4 completions. This course is graded S/U.			
<b>8192</b>	<b>Internship in Intellectual and Developmental Disability Psychology</b>	<b>G</b>	<b>0 - 9</b>
Full or part-time supervised training in an approved predoctoral internship agency; applied setting serving children or adults with IDD; supervision and directed experiences coordinated by student's advisor, program training director, and internship training director. Prereq: PhD candidacy in IDD Psychology, an approved dissertation proposal, and written permission of advisor. Repeatable to a maximum of 36 cr hrs or 4 completions. This course is graded S/U.			
<b>8860</b>	<b>Current Research in Cognitive Neuroscience</b>	<b>G</b>	<b>2</b>
This course is required for all Cognitive Neuroscience graduate students and for Cognitive Neuroscience concentration students. Students will attend talks by internal/external faculty, workshops given by the invited speaker's students/postdocs, and professional development workshops; students will also be required to give a talk about their research.			
<b>8876</b>	<b>Professional Issues in Social Psychology</b>	<b>G</b>	<b>3</b>
Overview of professional issues facing the social psychologist seeking an academic career - focus on review of journal articles and grants as well as broader issues. Prereq: Permission of instructor. Not open to students with credit for 876.03.			
<b>8877</b>	<b>Current Research: Attitudes</b>	<b>G</b>	<b>3</b>
Advanced training in the conduct, evaluation, and presentation of research related to attitudes, attitude change, and the consequences of attitudes for judgments and behavior. Cannot be taken concurrently with 8878. Prereq: Admission to Psychology's Social Psychology doctoral program. Repeatable to a maximum of 24 cr hrs.			

<b>8878</b>	<b>Current Research: Social Cognition</b>	<b>G</b>	<b>3</b>
Advanced training in the conduct, evaluation, and presentation of research related to social cognition. Cannot be taken concurrently with 8877. Prereq: Admission to Psychology's Social Psychology doctoral program. Repeatable to a maximum of 24 cr hrs.			
<b>8880</b>	<b>Current Research in Decision Psychology</b>	<b>G</b>	<b>2</b>
Advanced training in the conduct, evaluation, and presentation of research related to the psychology of decision making. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.			
<b>8881</b>	<b>Cognitive and Affective Influences in Decision Making</b>	<b>G</b>	<b>3</b>
Provides an introduction to recent trends in decision research. We make choices and perceive risk based on cognitive, affective, and motivational factors that influence how we perceive meaning and construct our preferences. The course will cover theoretical distinctions and their application to practical domains such as health, finances, and the environment. Prereq: Permission of instructor.			
<b>8890</b>	<b>Topical seminar in Decision Psychology</b>	<b>G</b>	<b>2 - 5</b>
Provides an in-depth analysis of a specialized research area in decision psychology. The course will cover theoretical distinctions and might cover their application to practical domains such as health, finances, and the environment. The course is repeatable when the topic changes. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions.			
<b>8891</b>	<b>Advanced Seminar in Clinical Psychology</b>	<b>G</b>	<b>2 - 3</b>
Advanced topics in clinical psychology. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>8896</b>	<b>Advanced Seminar in Quantitative Psychology</b>	<b>G</b>	<b>1 - 3</b>
Advanced seminars in quantitative psychology. Prereq: Permission of instructor. Not open to students with credit for 831.08. Repeatable to a maximum of 15 cr hrs or 5 completions.			
<b>8999</b>	<b>Dissertation Research in Psychology</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes only. Repeatable to a maximum of 60 cr hrs or 15 completions. This course is graded S/U.			

## Public Affairs, John Glenn College

<b>1100</b>	<b>Public Affairs Advising Survey</b>	<b>U</b>	<b>1</b>
Introduction to the Public Affairs major at Ohio State, as well as University and Glenn School academic policies and procedures. Prereq: Permission of instructor. Not open to students with credit for 100. This course is graded S/U.			
<b>1191</b>	<b>High School Internship</b>	<b>U</b>	<b>3</b>
Part of an innovative public service internship program for selected high school seniors who are admitted to the OSU Academy. It is coupled with a related intensive academic seminar (PubAfrs 1190). Concur: 1190 (294). Not open to students with credit for 294.			
<b>2110</b>	<b>Introduction to Public Affairs</b>	<b>U</b>	<b>3</b>
Introduces students to the policymaking process and the core crafts on which schools of public affairs focus: policy analysis & evaluation and public administration & management. GE soc sci human, nat, and econ resources course.			
<b>2120</b>	<b>Public Service and Civic Engagement</b>	<b>U</b>	<b>3</b>
Introduces students to the role an engaged citizenry plays in a democracy; trends in civic engagement; the reasons behind these trends, and their consequences; issues of social equity in engagement; and strategies to increase civic participation. Recommended prereq: 2110. Prereq: Not open to students with credit for 240.			
<b>2130</b>	<b>Leadership in the Public and Nonprofit Sectors</b>	<b>U</b>	<b>3</b>
Students examine theories of leadership; learn the unique challenges of being a leader in the public or nonprofit sectors; analyze the practices, strategies, and habits of successful leaders; and assess their own leadership competencies. Recommended prereq: 2110. Prereq: Not open to students with credit for 290.			
<b>2150</b>	<b>Introduction to Nonprofit Organizations</b>	<b>U</b>	<b>3</b>
Introduces students to the world of nonprofit organizations, in particular those whose missions address social issues and public service. Prereq: Not open to students with credit for 337 or ArtsSci 337.			
<b>2160</b>	<b>Exploring Public Affairs</b>	<b>U</b>	<b>1</b>
Overview of public affairs as a field. Exposes students to relevant career opportunities. The course draws on experience of faculty and practicing professionals, providing public affairs perspectives in traditional and nontraditional career paths. Prereq: Open to John Glenn Learning Community students only or by permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.			
<b>2193</b>	<b>Individual Study</b>	<b>U</b>	<b>1 - 6</b>
Individual studies in public affairs. Prereq: Fresh or Soph standing and permission of Associate Director of Academic Affairs and Research. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			

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<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 6</b>
Designed to give groups of undergraduate students an opportunity to pursue special studies in topics not otherwise offered. Prereq: Fresh or Soph standing and permission of Associate Director of Academic Affairs and Research. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>2367</b>	<b>Writing and Communication in Public Affairs</b>	<b>U</b>	<b>3</b>
Being an effective communicator can determine the reach and impact of policy, as well as the ability to influence change. In this course, you will become a better writer and speaker on a topic of public policy; including communicating to diverse audiences with differing information demands. Prereq: English 1110 or equivalent, and sophomore standing; or permission of instructor. GE writing and comm course: level 2.			
<b>2500</b>	<b>History of Public Administration</b>	<b>U</b>	<b>3</b>
This course is an introduction to the history of public administration around the world from the earliest time up to the present, and the emergence and development of government and governing over time. Prereq or concur: English 1110.xx. GE historical study course.			
<b>2620</b>	<b>Contemporary Issues in Science, Engineering, and Technology Policy</b>	<b>U</b>	<b>3</b>
This course provides a fast-paced introduction to the way Science and Engineering and Public Policy affect each other using examples drawn from contemporary events and analyses.			
<b>2630</b>	<b>Contemporary Civil-Military Relations in the United States</b>	<b>U</b>	<b>3</b>
The vision for this course is to connect Americans with their military - to build mutual understanding between military and civilian experiences. As a member of the American public, you have a say in what the military looks like and how it engages with the world. This course teaches you the tools and skills to effectively engage in military veterans policy.			
<b>3000</b>	<b>Public Policy Analysis</b>	<b>U</b>	<b>3</b>
Introduces students to the concepts, theories, and methods of applied policy analysis. Students develop an understanding of market failures and the tools available to public sector actors to mitigate them. Students also learn various methodological approaches to analyze public policy at the formulation and implementation stages. Prereq: Econ 2001.01, 2001.02, or 2001.03, and GE Data Analysis course; or permission of instructor.			
<b>3110</b>	<b>Education Policy in a Changing World</b>	<b>U</b>	<b>3</b>
Provides an introduction to education policy for public sector leaders and an overview of the following topics: education and the economy; education and governance; teaching and learning in education; student outcomes; and career opportunities in education policy.			
<b>3140</b>	<b>Nonprofit Management and Governance</b>	<b>U</b>	<b>3</b>
Survey and analysis of nonprofit organization management and governance, in particular those whose missions address social issues and public service. Prereq: Not open to students with credit for 594 (WI 2011 only).			
<b>3150</b>	<b>Fundraising and Philanthropy for Nonprofits</b>	<b>U</b>	<b>3</b>
This course enhances students' skills, knowledge and abilities connected to fund development strategies, processes, evaluation and systems. Students will become familiar with how to apply the theories and methods of fundraising in various nonprofit contexts.			
<b>3500</b>	<b>Public Management</b>	<b>U</b>	<b>3</b>
Students are introduced to public management concepts and gain the competencies required to become effective public managers. They consider the unique challenges of managing public organizations and learn how to apply management tools to improve organizational performance. Recommended prereq: 2110.			
<b>3620</b>	<b>US Space Policy and the Global Space Economy</b>	<b>U</b>	<b>3</b>
This course provides a broad survey of US space policy and the national and international actors in the aerospace enterprise. It will explore the origins of the social, political, and economic implications of space policy choices made by American leaders, as well as the geography of space pursuits and the motivations behind various countries' space policies.			
<b>4000</b>	<b>Public Policy Evaluation</b>	<b>U</b>	<b>3</b>
Students learn how to design and perform policy evaluations focused on policy processes and outcomes, using both qualitative and quantitative data. There is particular emphasis on the development of research designs and application of analytic methods for public policy evaluation. Prereq: 3000, Stat 1350 or above, and Econ 2001.01, 2001.02, or 2001.03; or permission of instructor.			
<b>4010</b>	<b>Public Affairs Decision-Making</b>	<b>U</b>	<b>3</b>
Introduces students to research on decision-making and its practical application in the public and non-profit sectors. Draws on interdisciplinary scholarship that examines how people make decisions and considers the application of these insights in the design of public policy and the management of public and non-profit organizations. Prereq: 3000.			
<b>4011</b>	<b>Public Affairs Capstone</b>	<b>U</b>	<b>3</b>
A capstone course for public affairs majors that focuses on the integration and application of public affairs knowledge and skills, as well as the transition from undergraduate study. Students complete an applied analysis or research paper on a policy or management topic of interest to them. Prereq: 2110, 2120, 3000, and 3500.			

<b>4020</b>	<b>Contemporary Issues in Governance: Washington DC</b>	<b>U</b>	<b>3</b>
Academic seminar of the Washington Academic Internship Program. Students will study public policy and management in the federal context. Discussion of common readings will expose students to topical issues in governance and provide a unique opportunity to apply knowledge, utilize analytical tools, and research various subjects in the environment in which policy and administration takes place. Prereq: Jr standing, and acceptance into the Washington Academic Internship Program. Not open to students with credit for 4011.			
<b>4021</b>	<b>Research Paper in Public Affairs: Washington DC</b>	<b>U</b>	<b>3</b>
Capstone course to write an analytic research paper that examines an important policy or management challenge in the public sector. Paper will be written as part of participation in Washington Academic Internship Program. Prereq: Jr or Sr standing, and acceptance into Washington Academic Internship Program. Concur: 4020 and 4191.02.			
<b>4030</b>	<b>Public Budgeting</b>	<b>U</b>	<b>3</b>
Provides a high-level understanding of budgeting processes at all levels of government and in the nonprofit sector, as well as the fundamentals of public budgeting from the perspective of a practitioner. Reviews basic methods for public sector budgeting and analysis. Prereq: Econ 2001.01, 2001.02, or 2001.03.			
<b>4040</b>	<b>Public Sector Data Sciences and Management</b>	<b>U</b>	<b>3</b>
This course provides an orientation to the use of data for decision-making in the public sector. The emphasis of the course is on how to use data in context - when organizations require the analysis of sophisticated data in order to achieve goals or priorities. Prereq: Completion of the PubAfrs BA or BS GE Requirement for data analysis.			
<b>4060</b>	<b>Senior Leadership Seminar</b>	<b>U</b>	<b>3</b>
Students integrate multidisciplinary theoretical and practical approaches of leadership development and civic engagement to reflect on how leadership is defined, how it changes, and how individuals and groups can apply experience in college to civic minded engagement and change after graduation. Prereq: Sr standing.			
<b>4110</b>	<b>Higher Education and Workforce Policy</b>	<b>U</b>	<b>3</b>
This course provides an overview of higher education and workforce training, and examines the role of government in the strategic planning, funding, and monitoring of education after compulsory schooling. The class will address both the systems in the United States, as well as workforce and higher education in developing and other developed countries.			
<b>4191.01</b>	<b>Public Affairs Internship</b>	<b>U</b>	<b>1 - 3</b>
Internship with a public, non-profit or similar organization in which students learn about sector combined with academic research component relevant to internship area. Prereq: Students must have internship approved by John Glenn College prior to registering. Students may not receive credit for an internship already completed. Prior approval required. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>4191.02</b>	<b>Student Internship in Public Affairs: Washington DC</b>	<b>U</b>	<b>3</b>
Washington D.C. Academic Internship Program offered through the John Glenn School of Public Affairs. Students from any discipline at the university may apply. Interns explore public policy issues and link experience to theoretical foundations. Students must be accepted to program in order to participate. Concur: 4011 and 4021. Not open to students with credit for 589. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>4191.03</b>	<b>Student Internship in Public Affairs</b>	<b>U</b>	<b>3</b>
Students will work an average of 10-12 hours per week at their designated internship. Internship placements are made with the intent of serving the needs of the host organization or government agency. This class will serve as the academic component of OGIP, sponsored by the State of Ohio Leadership Institute. Prereq: 2120 or PolitSc 3115.			
<b>4310</b>	<b>State and Local Government Finance</b>	<b>U</b>	<b>3</b>
Financing public services by state/local governments. The fiscal relationship between state/local governments and the federal government. Apply techniques of economic analysis to policy issues. Prereq: Econ 2001.01, 2001.02, or 2001.03. Cross-listed in Econ.			
<b>4510</b>	<b>Law and Public Affairs</b>	<b>U</b>	<b>3</b>
Introduces students to the legal environment within which public employees and administrators operate, emphasizing the work of the judiciary, and providing a legal basis for the study of public affairs, with a focus on how the courts engage in the policy making process.			
<b>4535</b>	<b>International Economic Development</b>	<b>U</b>	<b>3</b>
Study of the growth and diversification of developing economies and the causes of poverty and inequality. Analyze the impacts of human capital formation, markets, and public policy on development. Prereq: AEDEcon 2001 (200) or Econ 2001 (200). Not open to students with credit for AEDEcon 435 or AEDEcon 535, or IntStds 4535 (535). Cross-listed in AEDEcon and IntStds.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 12</b>
Individually supervised undergraduate research and project work in Public Affairs. Prereq: Jr or Sr standing, and permission of the Associate Director of Academic Affairs and instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded.			

<b>4999.01H Honors Undergraduate Thesis</b>	<b>U</b>	<b>1 - 3</b>
Honors Thesis in various topics related to Public Policy. Requires an Honors Thesis. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is progress graded.		
<b>4999.02H Honors Undergraduate Thesis II</b>	<b>U</b>	<b>1 - 3</b>
Honors Thesis in various topics related to Public Policy. Requires an Honors Thesis. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is progress graded.		
<b>5030 Local Government</b>	<b>U G</b>	<b>3</b>
Designed to provide a basic introduction to local governments and their relationship to state government. The course will cover organization, structure, responsibilities, management, and financing of local governments.		
<b>5060 Managing People in Public and Nonprofit Organizations</b>	<b>U G</b>	<b>3</b>
This course is designed to enhance students' management and leadership skills, preparing them to diagnose and solve organizational problems, to influence the actions of other individuals, groups, and organizations, and to manage high-performing, successful public and nonprofit service organizations. Prereq: Acceptance into the Public and Nonprofit Leadership and Management certificate program.		
<b>5062 Leadership Development Application</b>	<b>U G</b>	<b>3</b>
PA 5062 is designed to hone and demonstrate students' accumulated leadership knowledge and skills needed to successfully direct a work group or organization to achieving its public service goals. Prereq: 5060, and acceptance into the Public Leadership and Management Certificate program.		
<b>5100 Contextual Awareness for Leaders In Public Organizations</b>	<b>U G</b>	<b>3</b>
Cultivates contextual awareness for public officials and the societal environment in which they operate. Effective and inspiring leadership is developed in this course through experiential learning of how one is perceived and how perceptions of others can be managed. Develops awareness of heuristics and biases that may play a role in assessing situations in work and organizational environment. Prereq: Must be accepted to the Ohio Public Servants Leadership Academy (OPSLA). Not open to those with credit for 4600.		
<b>5101 Organizational Culture and Ethics into Practice</b>	<b>U G</b>	<b>3</b>
Intensive course on organizational culture, types of organizations and how structures influence various cultures (family, workplace, school, country, church); and the relation between organizational and individual ethics. Prereq: Acceptance into the Ohio Public Safety Leadership Academy (OPSLA). Coreq: 5102. Not open to students with credit for 4600.		
<b>5102 Organizational Theory into Practice</b>	<b>U G</b>	<b>4</b>
Investigates various types of organizations, interagency relations, intergovernmental relations, program evaluation, budgeting and finance, data management, policy making, leadership theory and styles and the relation between type of organization and its functioning. Prereq: Admission to the Ohio Public Safety Leadership Academy (OPSLA). Coreq: 5100 and 5101. Not open to students with credit for 4600		
<b>5193 Individual Study</b>	<b>U G</b>	<b>1 - 6</b>
Individual Studies in Public Affairs. Prereq: Jr standing and permission of Associate Director of Academic Affairs and Research. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.		
<b>5194 Group Studies</b>	<b>U G</b>	<b>1 - 6</b>
Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered. Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.		
<b>5240 Race and Public Policy in the United States</b>	<b>U G</b>	<b>3</b>
This course explores race and public policy in the United States from Reconstruction to the present. In particular, the class is designed to look at the long history of hot topics in the current policy landscape, including policing, housing, wealth gap, immigration, voting, political representation, and others. Prereq: Jr, Sr, or Grad standing; or permission of instructor. Not open to students with credit for AfAmAST 5240 or CompStd 5240. Cross-listed in AfAmAST and CompStd.		
<b>5250 Poverty, Inequality, and Public Policy</b>	<b>U G</b>	<b>3</b>
Presents the distribution, trends, causes, and consequences of poverty and inequality in the US and social science frameworks for understanding and analyzing public programs available to poor and near-poor Americans. Current and historical issues in social policy and poverty, program design, and implementation. The role of government, personal choice, education, employment, and discrimination. Prereq: Econ 2001.01, or permission of instructor.		
<b>5400 Planning for Housing</b>	<b>U G</b>	<b>3</b>
Housing - including its uses, meaning, design, and role. The creation of a range of housing to support growth and revitalization of cities and regions. Prereq: Not open to students with credit for CRPlan 320, 752, or 5400. Cross-listed in CRPlan.		

<b>5506 Administration of Criminal Justice Policy</b>	<b>U G</b>	<b>3</b>
Students will become familiar with the structure of the criminal justice system and the application of public management and organizations theory to the criminal justice system. Many of the applications will focus on Ohio, but the theories and concepts are broadly applicable to the American system of criminal justice.		
<b>5513 Excel Basic Skills</b>	<b>U G</b>	<b>1</b>
This first of two Excel courses focuses on how to use Microsoft Excel from basic data entry, formatting, filtering and sorting, basic functions and formulas, basic nest formulas, and basic charts and graphs. A variety of techniques and data management concepts are presented and discussed. Real world examples are used to provide context. Repeatable to a maximum of 2 cr hrs.		
<b>5514 Excel Advanced Skills</b>	<b>U G</b>	<b>1</b>
Excel Advanced Skills focuses on how to use intermediate to advanced Microsoft Excel functionality from nested formulas to data analysis through the use of pivot tables and creating interactive worksheets. A variety of techniques and data management concepts are presented and discussed. Real world examples are used to provide context. Excel Basic class not required but recommended for beginners.		
<b>5545 How Washington Works</b>	<b>U G</b>	<b>1</b>
Intended to orient students to the priorities and complexities of the capital of the United States: what it does, why it does it and how. The mission of the course is to provide a broad view into one of the world's main power centers.		
<b>5590 Fundraising and Philanthropy for Nonprofit Organizations</b>	<b>U G</b>	<b>3</b>
Designed for students interested in careers and/or volunteer roles in nonprofit administration and current professionals in this area: basic skills, theories, and applied methods of generating funding and creating development plans. Prereq: Not open to students with credit for 880.06.		
<b>5591 Lobbying and Government Relations</b>	<b>U G</b>	<b>3</b>
Designed to provide an introduction to lobbying government affairs and at the local, state and federal levels of government. Prereq: Not open to students with credit for 880.06.		
<b>5592 Marketing for Nonprofit and Public Organizations</b>	<b>U G</b>	<b>3</b>
Examines marketing principles of mission-driven organizations, specifically nonprofits and government agencies. It will provide students with an introduction to marketing theory, and will equip them with practical experience in developing a strategic marketing plan that addresses challenges unique to nonprofit and public sector marketers. 7553 is a recommended prerequisite for Grad students. Prereq: 3140 for undergraduate students.		
<b>5595 Social Enterprise</b>	<b>U G</b>	<b>3</b>
A comprehensive introduction to the core concepts and key principles of social enterprise. Social enterprises are defined as nonprofit organizations that draw on market principles to pursue their social mission as well as governments and businesses as well. This course applies concepts and principles to the analysis of the social enterprise activities of individuals and organizations.		
<b>5600 Science, Engineering, and Public Policy</b>	<b>U G</b>	<b>3</b>
Presents the history of the interactions between science, engineering, and public policy in the United States and in the context of global concerns (e.g. climate change, competitiveness), inquires into how various federal government, universities, & corporations conduct & fund science and engineering & explore how public sector interests & processes influence sci, engr & public policy. Prereq: Jr, Sr, or Grad standing; or permission of instructor. Cross-listed in EnvEng.		
<b>5610 Innovation, Policy, and the Global Economy</b>	<b>U G</b>	<b>3</b>
This course examines frameworks and theories of public administration, governance, and policy for science and engineering at the international level. It will critique existing theories of global knowledge development and transfer, governance, and trade through the lens of science and engineering. Prereq: Jr, Sr or Grad Standing.		
<b>5620 Rapid Innovation for Public Impact</b>	<b>U G</b>	<b>4</b>
The Rapid Innovation for Public Impact course is like a multi-disciplinary capstone or hands-on applications course in which student teams tackle real, contemporary, complex problems sponsored by government or non-profit agencies. Following Lean Innovation methodology, student teams develop minimum viable products (MVP) or prototype-solutions through intensive customer discovery and agile design.		
<b>5700 Rebuilding Failed and Weak States</b>	<b>U G</b>	<b>3</b>
Tackles the question of how to design policies and programs to rebuild failed and weak states into functioning, if not vibrant, democracies. Prereq: Soph standing or higher or permission of instructor. Not open to students with credit for 670 or IntStd 5700 (670). Cross-listed in IntStd.		
<b>5750 Public Policy: The Business-Government Relationship</b>	<b>U G</b>	<b>3</b>
Business tools and strategy for influencing government; evolution and direction of public policy toward business. Prereq: Jr standing or above.		

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**5770 Risk & Decision Analysis in Public Affairs** U G 3

This course provides a comprehensive assessment of theories and tools for decision-making in the face of risk and uncertainty, giving a rigorous treatment of current issues and approaches in risk analysis through both qualitative and quantitative lenses.

**5800 Special Topics Seminar in Public Affairs** U G 3 - 4

Designed to give students an opportunity to pursue special studies in topics not otherwise offered.

Prereq: Jr standing or above, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.

**5890 US Food Policy** U G 3

An examination of national food affairs and policy at the federal level. Attention will focus on contemporary policy issues including food insecurity, health claims, obesity, novel crops, ingredients and processing techniques, sustainability, corporate consolidation, and food advertising; as well as how these issues impact the choices of federal institutions.

**5895 Food Insecurity, and Food Assistance Programming and Policy in the U.S** U G 3

Students will explore the complex set of factors that influence food insecurity in the U.S.; current approaches to addressing food insecurity in the U.S. at the local, state, and federal levels; the historical, social, political, and economic roots of current programming efforts; the strengths, limitations, and controversies related to such programming; and the potential for social welfare policy.

Cross-listed in HthRhSc.

**5900 Food System Planning and the Economy** U G 3

Examines the social, environmental and economic costs and benefits of our food production, distribution, and consumption.

Prereq: Not open to students with credit for AEDEcon 5900 or CRPlan 5900. Cross-listed in AEDEcon and CRPlan.

**6000 Public Policy Formulation and Implementation** G 4

Overview of the public policy process and the historical and contemporary context in which policy making and implementation are carried out in the United States at the federal, state and local levels.

**6010 Legal Environment of Public Organizations** G 4

Provides students an understanding of the legal foundations of public affairs. Students use legal reasoning to examine and analyze the constraints imposed on public policy making and program management and implementation by the legal environment.

Prereq: Not open to students with credit for 802.

**6020 Foundations of Data-Driven Sustainable Energy Systems** G 3

Introduction to issues impacting sustainable energy systems across technology, law and policy, business models, resilience, data, geospatial, and decision sciences.

Prereq: Enrollment in Data-Driven Sustainable Energy Systems Graduate Interdisciplinary Specialization, or permission of instructor. Not open to students with credit for AEDEcon 6500, EnvEng 6020, FABEng 6020, Geog 6020, or ISE 6020. Cross-listed in AEDEcon 6500, EnvEng 6020, FABEng 6020, Geog 6020, and ISE 6020.

**6030 Public Sector Economics** G 4

Economic analysis in the public sector. Application of economic analytical techniques to identify and frame public policy problems; analysis of policy solution trade-offs; efficiency; market failure; public choice.

Prereq: Econ 2001, or equiv.; or permission of instructor.

**6040 Public Budgeting and Finance** G 4

Survey/analysis of government fiscal activities; taxation principles, intergovernmental relations, fiscal problems; public sector budgeting; budgets as mechanism for planning/allocating/controlling resources; tools for program and results evaluation.

Prereq: 6030 or PubHHMP 7602 (CoPH students only); or permission of instructor.

**6045 Fundamentals of Budgeting and Financial Administration** G 2

Focuses on planning and financial decision-making in public and nonprofit organizations. It provides a higher-level understanding of government and nonprofit budgeting processes.

**6050 Managing Public Sector Organizations** G 4

Learn to manage public sector organizations with a focus on the external environment: context of public sector organizations, their structure, how they operate; managing organizational performance, innovation, and change.

**6051 Into to Public Affairs and Orientation to the Program** G 4

Prepares students for their roles as action-oriented administrators, managers and leaders within a democratic system of governance. Through online readings, videos, and exercises students will explore the context of public sector management and leadership. Provides exposure to the full curriculum plan and solidifies the work-based project that will span the degree program.

**6055 Judgment in Managerial Decision-Making** G 2

This course will present a diverse set of models and skills to analyze and guide decisions in operational and managerial settings by drawing on scholarship from economics, psychology, sociology, political science, and management. Provides opportunities for managers to practice how to identify common biases and logical fallacies and employ skills and techniques to compensate for them.

**6060 Managerial Leadership in Public and Nonprofit Organizations** G 4

Managerial Leadership in Public and Nonprofit Organizations with focus on internal operations, processes, and resources; human resource management, information technology; other aspects of internal capacity.

**6070 Public Affairs Statistics** G 4

Provides students with analytical knowledge and tools necessary to acquire, manage and analyze data. Students learn probability and statistics to conduct analysis and evaluation and evaluate the quality of analyses conducted by others.

Prereq: Not open to students with credit for both 820 and 822.

**6075 Data, Models and Evaluation** G 4

This course will provide the knowledge and tools necessary to analyze data. Students learn about fundamentals of statistics to conduct analysis, and they will develop an understanding of program evaluation and research design in order to evaluate the quality of analyses conducted by others and communicate findings. Work on applied project related to their jobs that culminate in Capstone projects.

**6080 Public Affairs Program Evaluation** G 4

Equips students with knowledge and skills to evaluate public policies and programs. Students learn about different types of evaluations and research designs for conducting evaluations. Exposure to ethical considerations in conducting evaluations.

Prereq: 6070, 6070.01, or 6070.02.

**6193 Individual Studies** G 1 - 6

Master's level individual studies in public affairs.

Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

**6194 Group Studies** G 1 - 6

Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered.

Repeatable to a maximum of 18 cr hrs or 3 completions. This course is graded S/U.

**6460 Real Estate Finance for Planners** G 3

Realize plans by understanding the financial mechanisms to fund projects. Explore how public-private partnerships create opportunities for affordable housing, downtown revitalization, and neighborhood improvement.

Prereq: Grad standing or permission of instructor. Not open to students who have taken CRPlan 6460. Cross-listed in CRPlan.

**6500 Public Affairs Skills: Written and Oral Communication** G 2

Being an effective communicator can determine the reach and impact of policy, as well as the ability of a public manager to influence change. Course information includes becoming a better writer and speaker on a topic of public policy - including communicating to diverse audiences with differing information demands.

Prereq: Not open to students with credit for 809. Repeatable to a maximum of 4 cr hrs.

**6505 Public Affairs Skills: Governmental Accounting** G 1

Explores governmental accounting and financial reporting. Topics include long term financing and state and local government financial condition analysis.

Prereq: Not open to students with credit for 852.

**6510 Conveying Quantitative Data in Public Affairs** G 1

Provides students with an understanding of how to convey complex information visually using software tools so as to facilitate, frame and inform debates around issues in public policy and public finance.

Prereq: Grad standing or permission of instructor.

**6515 Database Management** G 1

Addresses the efficient and effective use of the database environment as a resource for the support of decision making at tactical, strategic and policy levels within the public sector.

Prereq: Grad standing or permission of instructor. Not open to students with credit for 821.

**6520 Balanced Scorecards and Dashboards** G 1

Skills course that covers the development and display of performance information for decision making.

Prereq: Grad standing or permission of instructor.

**6525 Survey Design in Public Affairs** G 1

Surveys key concepts and methods of survey design and implementation for public program evaluation and public policy analysis.

Prereq: Grad standing or permission of instructor.

**6530 Negotiation for the Public Sector** G 1

Negotiation skills have been identified as critical for effective, successful public management and leadership. Explores the major concepts and theories of negotiation to improve negotiation skills. Through readings, role play exercises and class discussion, students develop an understanding of individual negotiation styles and core approaches to negotiation and dispute resolution.

Prereq: Grad standing, or permission of instructor.

<b>6540</b>	<b>Professional Development Skills Class</b>	<b>G</b>	<b>1</b>
Public administration professionals face an ever-changing professional landscape in a variety of occupations across the public, nonprofit, and private sectors. The section is specifically taught through the lens of Washington, DC, as it serves students who will intern and complete their capstone in DC next year. Provides tools needed to make students successful in the job search and workforce.			
<b>6545</b>	<b>Washington Navigator</b>	<b>G</b>	<b>1</b>
Students will learn to navigate the nation's capital during their first-semester in Washington to set themselves up for professional success through panels and speakers, professional pathway planning, and networking. This course is only offered in Washington, D.C. and is a required course for students enrolled in the MPA-D.C. program at the John Glenn College of Public Affairs. Prereq: Acceptance into the John Glenn College of Public Affairs MPA-DC program.			
<b>6890</b>	<b>Special Topics: Skills in Public Affairs</b>	<b>G</b>	<b>1</b>
Contains special topics exclusively appropriate to the "Skills" portion of the Glenn School Masters curriculum. Prior to scheduling, a syllabus with learning objectives, topics, and a rationale will be agreed upon by the faculty. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 8 cr hrs.			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Designed to give groups of students the opportunity to pursue special advanced studies in topics not otherwise offered. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>7501</b>	<b>Grant Writing in the Public Sector</b>	<b>G</b>	<b>3</b>
An introduction to the public sector process of grant writing including techniques and structure. Prereq: Not open to students with credit for 880.02 or CRPlan 6610 (837). Cross-listed in CRPlan 6610.			
<b>7503</b>	<b>Higher Education Policy for Public Leaders</b>	<b>G</b>	<b>3</b>
Provides an introduction to education policy for public sector leaders. Topics include Higher Education economic foundations, budget processes, current policies, and international education and practice. Prereq: Not open to students with credit for 880.06.			
<b>7505</b>	<b>Wicked Policy Problems</b>	<b>G</b>	<b>3</b>
Elective course examines "wicked" policy problems, or policy problems that require attention to multiple causal factors (e.g. economic, financial, political, social, cultural, technological).			
<b>7507</b>	<b>Criminal Justice Policy</b>	<b>G</b>	<b>3</b>
Overview of criminal justice system with focus on structural, organizational, and micro-level aspects of the criminal justice policy process; study of key systemic as well as current policy issues and fiscal impacts of policies. Prereq: Not open to students with credit for 840.			
<b>7509</b>	<b>Disasters: Preparedness and Response</b>	<b>G</b>	<b>3</b>
Introduction to planning, policy and management issues that arise when disaster strikes, and the roles of government, non-profits, communities and individuals in emergency preparedness by examining a variety of recent natural and human-made disasters, both in the U.S. and abroad. Cross-listed in CRPlan.			
<b>7531</b>	<b>Economic Development Policy</b>	<b>G</b>	<b>3</b>
Takes a practical approach to the legal, policy and business issues related to urban redevelopment. Gain a legal perspective as they investigate business and public policy issues surrounding redevelopment in our urban core. Prereq: Not open to students with credit for CRPlan 7531. Cross-listed in CRPlan.			
<b>7533</b>	<b>Nonprofit Financial Management</b>	<b>G</b>	<b>3</b>
Focuses on financial management in nonprofit organizations which may rely primarily on donor support through pledges, grants and endowments or on revenues generated through the provision of services.			
<b>7534</b>	<b>Privatization</b>	<b>G</b>	<b>3</b>
Examines the theory and current practice of privatization against the backdrop of public policy and public administration. Prereq: Not open to students with credit for 880.07.			
<b>7535</b>	<b>Regulation and Deregulation</b>	<b>G</b>	<b>3</b>
Examine the strengths and limitations of economic and social regulation, the occasion for and evolution of their policy development, and the prospects for regulation, deregulation, and re-regulation in the U.S. economy. Prereq: Not open to students with credit for 880.05.			
<b>7550</b>	<b>Contract Management</b>	<b>G</b>	<b>3</b>
Provides students with a perspective on the need and methods for managing contract relationships and outsourced services in the public-sector.			
<b>7553</b>	<b>Nonprofit Management and Governance</b>	<b>G</b>	<b>3</b>
Advanced survey course on nonprofit management and governance, with a concentrated focus on evaluating and managing nonprofit capacity to achieve organizational performance and system impact. Prereq: Not open to students with credit for 880.06.			

<b>7554</b>	<b>Performance Measurement and Management in the Public Sector</b>	<b>G</b>	<b>3</b>
Provides students with an understanding of performance measurement and management principles to create useful performance information, to use data to manage operations, to develop more effective employees and to make financial decisions.			
<b>7555</b>	<b>Project Management</b>	<b>G</b>	<b>3</b>
Introduction to international standards and methods for project management (PM); the application of tools, the basic, ancillary, and "soft" skills for successful PM; public sector challenges; and strengths/limitations in a complex organic environment. Prereq: Not open to students with credit for CRPlan 6620. Cross-listed in CRPlan 6620.			
<b>7557</b>	<b>Strategy for Public Organizations</b>	<b>G</b>	<b>3</b>
Provides students with a strategic perspective on the management and leadership of public sector organizations. Prereq: Not open to students with credit for 812.			
<b>7570</b>	<b>Public Management Information Systems</b>	<b>G</b>	<b>3</b>
Critical study of the design and administration of management information systems for the public and nonprofit sectors. Prereq: Not open to students with credit for 821.			
<b>7571</b>	<b>Multivariate Regression Analysis</b>	<b>G</b>	<b>3</b>
An applied course in regression analysis in which students use multiple regression to make predictions and test hypotheses to help inform policy analysis. Prereq: 6070 or equiv. Grad level introductory statistics course.			
<b>7572</b>	<b>Policy Simulation and Modeling</b>	<b>G</b>	<b>3</b>
Introduction to the development of conceptual and data models for public policy analysis including hands-on experience with using simulations tools for agent-based and system dynamics modeling. Prereq: 6080 (804) or permission of instructor.			
<b>7573</b>	<b>Qualitative Methods for Public Policy and Management</b>	<b>G</b>	<b>3</b>
Explores qualitative decision-making methods specific to public affairs context using statistics, economics, public budgeting, finance, policy, and modeling theories. Repeatable to a maximum of 6 cr hrs.			
<b>7574</b>	<b>Mixed Methods Approaches for Policy-Related Research</b>	<b>G</b>	<b>3</b>
Evaluate the strengths and weaknesses of various mixed method research designs and how to identify a design that is appropriate for your research question. The course will compare different paradigms, sample/case selection logics, and types of evaluation associated with qualitative, quantitative, and mixed methods research. Cross-listed in HthRhSc.			
<b>7600</b>	<b>Federal Policy &amp; Administration</b>	<b>G</b>	<b>3</b>
Provides a unique opportunity to explore U.S. federal policy and administration in the nation's capital. Students will be exposed to a range of issues that are among the most salient to understanding the complexities of the federal government. Students will apply knowledge, utilize analytical tools, and research various subjects relating to the federal policy and administration. Prereq: 6000.			
<b>7610</b>	<b>Follow the Money: Making Sense of the Federal Budget</b>	<b>G</b>	<b>3</b>
The federal budget is arguably the most powerful policy tool in the U.S. government and has far-reaching impact not only across America, but the world. This course addresses the role and importance of the federal budget in politics, policy, and management and is designed for students whose careers intersect with the federal government, deepening their understanding of how resources are allocated.			
<b>7900</b>	<b>Capstone: Research Paper in Public Affairs</b>	<b>G</b>	<b>3</b>
Students integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth policy or management analysis of a defined topic or a specific organization. Prereq: 6000 (801), 6070 (820 & 822), 6080 (804); or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7910</b>	<b>Capstone: Public Policy Issues</b>	<b>G</b>	<b>3</b>
Students integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth Public Policy analysis of a defined topic or a specific organization. Prereq: 6000 (801), 6010 (802), 6070 (820 & 822), 6080 (804); or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7920</b>	<b>Capstone: Public Economics</b>	<b>G</b>	<b>3</b>
Students integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth Public Economics analysis of a defined topic or a specific organization. Prereq: 6000 (801), 6070 (820 & 822), 6080 (804), 6030 (830), 6040 (730 & 834); or permission of instructor.			
<b>7930</b>	<b>Capstone: Public Budgeting and Finance</b>	<b>G</b>	<b>3</b>
Students integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth Public Budgeting and Finance analysis of a defined topic or a specific organization. Prereq: 6000 (801), 6070 (820 & 822), 6080 (804), 6030 (830), 6040 (730 & 834); or permission of instructor.			

## 398 Public Affairs, John Glenn College

<b>7940</b>	<b>Capstone: Public Management</b>	<b>G</b>	<b>3</b>
Students integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth Public Management analysis of a defined topic or a specific organization. Prereq: 6000 (801), 6050 (810), 6060 (811), 6070 (820 & 822), 6080 (804); or permission of instructor.			
<b>7950</b>	<b>Capstone: Nonprofit Topics</b>	<b>G</b>	<b>3</b>
Integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth Nonprofit analysis of a defined topic or a specific organization. Prereq: 6000, 6070, and 6080; or permission of instructor.			
<b>7960</b>	<b>Capstone: Information Management</b>	<b>G</b>	<b>3</b>
Integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth Information Management analysis of a defined topic or a specific organization. Prereq: 6000 (801), 6050 (810), 6070 (820 & 822), 6080 (804); or permission of instructor.			
<b>7970</b>	<b>Capstone: Policy in an International Context</b>	<b>G</b>	<b>3</b>
Students integrate the knowledge and skills gained throughout the MA/MPA program by applying theory to practice through an in-depth International Context analysis of a defined topic or a specific organization. Prereq: Permission of instructor.			
<b>7990</b>	<b>MPAL Capstone</b>	<b>G</b>	<b>3</b>
This course builds on the core curriculum that students have completed in the program. Students will integrate the fundamental knowledge and skills gained in the MPAL curriculum and further apply them to relevant workplace situations. Prereq: 6045, 6050, 6055, 6060, and 6075. Concur: 6530.			
<b>8000</b>	<b>Public Policy and Management: Foundations and Approaches</b>	<b>G</b>	<b>3</b>
In-depth introduction to research and theory of public administration intended to familiarize students with major research streams in the field and issues and debates involved therein. Assists students in planning research directions. Prereq: John Glenn School Doctoral students or permission of instructor. Not open to students with credit for 880.06.			
<b>8030</b>	<b>Seminar in Public Policy</b>	<b>G</b>	<b>3</b>
Designed to heighten graduate students' ability to think critically about public policy research. It emphasizes the critical assessment of public policy research on policy formulation, implementation, and evaluation. Prereq: John Glenn School Doctoral students or permission of instructor. Not open to students with credit for 880.06.			
<b>8040</b>	<b>Seminar in Organizational Theory</b>	<b>G</b>	<b>3</b>
Survey of the major perspectives in organizational theory and their application to public management. Prereq: Not open to students with credit for 880.06.			
<b>8050</b>	<b>Seminar in Public Sector Economics</b>	<b>G</b>	<b>3</b>
The applications of rational choice modeling to public policy analysis and organizational decision-making. Prereq: 6030 (830), or Econ 4001 (501), or permission of instructor. Not open to students with credit for 880.02.			
<b>8055</b>	<b>Public Affairs and Public Choice</b>	<b>G</b>	<b>3</b>
Introduces a series of largely non-mathematical public economics and public choice models. The course is built around a series of powerful small thought models and economic concepts that have important implications for public policy. Uses economic modeling techniques and assumptions to explain the policymaking process. A survey of public choice models that can be applied broadly. Prior coursework in intermediate microeconomics required prior to enrollment.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 12</b>
Advanced individual studies in public affairs. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 4</b>
Designed to give groups of students the opportunity to pursue special advanced studies in topics not otherwise offered. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>8620</b>	<b>Innovating for Sustainable Energy Systems</b>	<b>G</b>	<b>4</b>
Provides students with the design tools and a framework to understand complex problems and develop within weeks minimal viable products or solutions that address energy-sector needs. Through an intense process of stakeholder interviews and continuous feedback, students acquire experience in systematic innovation, refining problem-statements, navigating public and private sector organizations.			
<b>8780</b>	<b>Logic of Policy Inquiry</b>	<b>G</b>	<b>3</b>
Explore research paradigms to determine how they suit one's values, research interests and objectives. Determine object of study, approaches and language used to acquire/disseminate knowledge. Prereq: Not open to students with credit for 890.			

<b>8782</b>	<b>Seminar in Policy Modeling</b>	<b>G</b>	<b>3</b>
Analyzes conceptual frameworks underlying scholarly products to help students plan a doctoral dissertation or a paper publishable in an academic journal. Prereq: Not open to students with credit for 880.05.			
<b>8890.01</b>	<b>First Year Doctoral Seminar I</b>	<b>G</b>	<b>1</b>
First in a sequential series of three, develops skills and capacities for first-year Glenn School doctoral students to succeed and thrive as scholars. Prereq: Not open to students with credit for 880.06.			
<b>8890.02</b>	<b>First Year Doctoral Seminar II</b>	<b>G</b>	<b>1</b>
Second in a series of three, develops skills and capacities for first-year Glenn School doctoral students to succeed and thrive as scholars. Prereq: 8890.01 or permission of instructor. Not open to students with credit for 880.06.			
<b>8890.03</b>	<b>Second Year Doctoral Seminar</b>	<b>G</b>	<b>1</b>
Last of three in a sequential series, develops skills and capacities for second-year Glenn School doctoral students to advance in the field as scholars and prepare for academic and non-academic careers. Prereq: 8890.01 and 8890.02, or permission of instructor. Not open to students with credit for 880.06.			
<b>8890.04</b>	<b>College Teaching in Public Affairs</b>	<b>G</b>	<b>2</b>
This interactive seminar assists advanced graduate students developing the necessary skills for college level teaching in public affairs: pedagogical strategies; theoretical and interdisciplinary practices, instructor professional development. Prereq: Grad standing, and permission of instructor.			
<b>8998</b>	<b>Graduate Research Non-Dissertation</b>	<b>G</b>	<b>1 - 8</b>
This course is designed to provide reading and research hours for students preparing for candidacy exams. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>8999</b>	<b>Research in Public Affairs: Dissertation</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation purposes only. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.			

## Public Health

<b>1100</b>	<b>Survey of Public Health</b>	<b>U</b>	<b>1</b>
An introduction to the University community; strategies for successful transition to and participation in that community; information about University resources and procedures; and (4) information about the College of Public Health and its programs.			
<b>2010</b>	<b>Introduction to Global Public Health</b>	<b>U</b>	<b>3</b>
Public health concepts examining the philosophy, purpose, history, organization, functions, and results of public health practices domestically and internationally. Presents the pressing global public health concerns of the 21st century. GE soc sci indivs and groups and diversity global studies course.			
<b>2010H</b>	<b>Honors Introduction to Global Public Health</b>	<b>U</b>	<b>3</b>
Introduction to Global Public Health presents global public health concepts and practice, examining the philosophy, purpose, history, organization, functions, tools, activities, and results of public health practice at the global, national, state, and community levels. Prereq: Honors standing, or permission of instructor. GE soc sci indivs and groups and diversity global studies course.			
<b>3180</b>	<b>Undergraduate Capstone Preparation</b>	<b>U</b>	<b>1</b>
The purpose of the class is to prepare undergraduate students in Public Health for their Capstone Experience. Students will learn the critical elements of Public Health Practice and Research as well as professional development skills to prepare them for the workplace and equip them with the tools needed to apply for graduate school. Prereq: Jr standing in BSPH major, or Soph standing for students who intend to complete an Honors Research Thesis. This course is graded S/U.			
<b>3180E</b>	<b>Undergraduate Capstone Preparation</b>	<b>U</b>	<b>1</b>
Prepares undergraduate students in Public Health for their Capstone Experience. Students will learn the critical elements of Public Health Practice and Research as well as professional development skills to prepare them for the workplace and equip them with the tools needed to apply for graduate school. Prereq: Jr standing in BSPH, or Soph standing for students who intend to complete an Honors Research Thesis. This course is graded S/U.			
<b>3189.01</b>	<b>Field Experience in Global Public Health: India</b>	<b>U</b>	<b>3</b>
Global public health concepts and associated metrics; role of cultural, social, economic, and environmental factors on public health in India; instructions in a classroom setting on an Indian campus and through field trips. Prereq: English 1110 (110), good academic standing, and completion of minimum 4 semesters (2 academic years) of undergraduate education.			
<b>3189.02E</b>	<b>Field Experience in Global Public Health: China</b>	<b>U</b>	<b>3</b>
Global public health concepts and associated metrics; role of cultural, social, economic, and environmental factors on public health in China; instructions in a classroom setting on a Chinese campus and through field trips. Prereq: Major or minor in Public Health or in health/biology-related areas, or permission of instructor.			



<b>3189.03</b>	<b>Field Experience in Global Public Health: Japan</b>	<b>U</b>	<b>3</b>
Global public health concepts and associated metrics; role of cultural, social, economic, and environmental factors on public health in Japan; instructions in a classroom setting on a Japanese campus and through field trips. Prereq: English 1110 (110), and good academic standing, and completion of minimum 4 semesters (2 academic years) of undergraduate education.			
<b>3189.03E</b>	<b>Field Experience in Global Public Health: Japan</b>	<b>U</b>	<b>3</b>
Global public health concepts and associated metrics; role of cultural, social, economic, and environmental factors on public health in Japan; instructions in a classroom setting on a Japanese campus and through field trips. Prereq: English 1110 (110), and good academic standing, and completion of minimum 4 semesters (2 academic years) of undergraduate education.			
<b>3189.04</b>	<b>Field Experience in Global Public Health: Finland and Estonia</b>	<b>U</b>	<b>3</b>
Global public health concepts and associated metrics; role of cultural, social, economic, and environmental factors on public health in Finland and Estonia; instructions in a classroom setting and through field trips.			
<b>3189.04E</b>	<b>Field Experience in Global Public Health: Finland and Estonia</b>	<b>U</b>	<b>3</b>
Global public health & associated metrics, role of cultural, social, economic, and environmental factors on public health in Finland and Estonia. Cross-listed in PubHlth 3189.04.			
<b>3191</b>	<b>Undergraduate Internship in Public Health</b>	<b>U</b>	<b>2</b>
Placement of BSPH students in a public health agency or related site for supervised practice experience. Prereq: Jr or Sr standing, enrollment in BS Public Health major, and permission of advisor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>3191E</b>	<b>Undergraduate Internship in Public Health</b>	<b>U</b>	<b>2</b>
Placement of BSPH students in a public health agency or related site for supervised practice experience. Prereq: 3180 or 3180E, Sr standing, enrollment in BS PubHlth major, and permission of advisor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>3193</b>	<b>Individual Studies in Public Health</b>	<b>U</b>	<b>1 - 3</b>
Individual study in a public health topic approved by and under the guidance of a faculty advisor. Prereq: Permission of a faculty advisor. Repeatable to a maximum of 6 cr hrs or 3 completions. This course is graded S/U.			
<b>3550</b>	<b>Special Topics in Public Health</b>	<b>U</b>	<b>1 - 6</b>
Regular class on topics that are relevant to students enrolled in programs in the College of Public Health undergraduate program. Prereq: Enrollment as a Public Health major or pre-major, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions.			
<b>3998</b>	<b>Undergraduate Public Health Research Seminar</b>	<b>U</b>	<b>2</b>
This seminar is designed for undergraduate students that are public health majors or pre-majors that are considering getting involved with research. In this seminar, students will learn about broad categories of research (for example, human subjects versus laboratory) and the ethical considerations for different types of research studies. Prereq: Enrollment in the Public Health major or pre-major, or permission of instructor. This course is graded S/U.			
<b>3999</b>	<b>Undergraduate Capstone Research in Public Health</b>	<b>U</b>	<b>2</b>
The goal of the Undergraduate Public Health Research Experience Capstone is to provide Public Health students with opportunities to apply public health principles outside of a typical classroom setting and build on public health coursework. This course allows students the opportunity to integrate classroom experiences and principles in an applied research setting. Prereq: 3180. This course is graded S/U.			
<b>4998</b>	<b>Undergraduate Research in Public Health</b>	<b>U</b>	<b>1 - 6</b>
Undergraduate research under the guidance of a faculty mentor in a basic or applied area of public health. Prereq: Jr or Sr standing, and enrollment in BSPH major, and permission of advisor. Students who are not junior or senior standing may be eligible with faculty mentor approval. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 3</b>
Conducting a research project and writing a thesis is a Capstone Option for undergraduate Public Health majors. It allows the student a significant opportunity to apply skills learned in the classroom to an applied research project. This is done under the supervision of a faculty advisor. Prereq: 3180 or 3180E, a cumulative GPA of 3.0 or higher, PUBHLTH-BS major, approval of research proposal by undergraduate research committee, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>4999.01H</b>	<b>Senior Honors Thesis</b>	<b>U</b>	<b>1 - 3</b>
An independent senior thesis course with faculty advisor; subject matter will vary depending upon student's topic. At least two semesters are required for the BSPH degree with research distinction. Failure to receive a mark of S in this course is a disqualification for special honors. Prereq: Honors standing in Public Health, 3180E, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			

<b>5015</b>	<b>Public Health Data Analytics I</b>	<b>U G</b>	<b>3</b>
In this course, students will gain a very general introduction to data analytics concepts and methods in the context of current and emerging public health issues. Students will be exposed to foundational concepts in data analytics that are relevant to the design, analysis, and interpretation of data-driven decision-making in public health and healthcare settings. Prereq: PubHBio 2210, Stat 3202, 3470, or 5301; or permission of instructor.			
<b>5760</b>	<b>Public Health Informatics</b>	<b>U G</b>	<b>3</b>
Introduction to the emerging and interdisciplinary field of Public Health Informatics. This course will highlight the history, current and future use of informatics in the public health settings, and give students an understanding of the role and broad application of informatics to promoting health and preventing disease. Cross-listed in BMI.			
<b>6000</b>	<b>Introduction to Global Health</b>	<b>G</b>	<b>2</b>
Overview of current and emerging global health issues, their determinants, actions, and interventions. Prereq: Open to Grad students with registration priority for students enrolled in the Interdisciplinary Global Health specialization. Not open to students with credit for 600.			
<b>6001</b>	<b>Methods in Quantitative Data Analysis</b>	<b>G</b>	<b>4</b>
Fundamentals of biostatistics and epidemiology for MPH students: Will cover core knowledge areas in quantitative data analysis, morbidity, mortality, and risk assessment to understand population health. Prereq: Grad standing in MPH-MP or MPHPEP-MP, or permission of instructor. Concur: 6002.			
<b>6002</b>	<b>History, Values and Essential Services of the U.S. Public Health System</b>	<b>G</b>	<b>2</b>
This course will cover the values, history and essential services of the US public health system and the foundations of the social and environmental determinants of health, including the impact of racism, poverty and other structural inequalities. Prereq: Grad standing in MPH-MP or MPHPEP-MP, or permission of instructor. Concur: 6001.			
<b>6003</b>	<b>Methods in Public Health Planning and Evaluation</b>	<b>G</b>	<b>2</b>
This course will address the methodology, conceptual frameworks, and strategies for planning and evaluating public health programs. Prereq: 6001 and 6002, and Grad standing in MPH-MP or MPHPEP-MP; or permission of instructor. Concur: 6004.			
<b>6004</b>	<b>Essentials of Population Health</b>	<b>G</b>	<b>4</b>
This course will cover organization, delivery and payment of healthcare services in the US and across the world; the framework for organizing the presentation and use of information concerning the effect of environmental conditions on health status. Prereq: 6001 and 6002, and Grad standing in MPH-MP or MPHPEP-MP; or permission of instructor. Concur: 6003.			
<b>6010</b>	<b>Essentials of Public Health</b>	<b>G</b>	<b>3</b>
An overview of the history and philosophy of public health, and the fundamental principles, concepts, and tools used in promoting the health of populations. The course is intended to orient students to the breadth of the field and introduce cross-specialization perspectives on major issues and problems in public health. Prereq: Enrollment in Master of Science in Public Health (PUBHLTH-MS), Doctor of Philosophy in Public Health programs (PUBHLTH-PH), Doctor of Philosophy in Biostatistics (BIOSTAT-PH), Master of Science in Environmental Sciences (ENVSCI-MS), Doctor of Philosophy in Environmental Sciences (ENVSCI-PH), or permission of instructor.			
<b>6189.01</b>	<b>Field Experience in Public Health</b>	<b>G</b>	<b>1 - 6</b>
Placement in a public health agency or related site for supervised practice experience. Prereq: Enrollment in public health degree program, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>6189.02</b>	<b>Field Experience in Global Health</b>	<b>G</b>	<b>1 - 6</b>
Placement in a public health agency or related site for supervised international practice experience. Prereq: Enrollment in public health degree program, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			
<b>7000</b>	<b>Public Health in Developing Countries</b>	<b>G</b>	<b>3</b>
Overview of core public health principles and practices applied to global health issues. Prereq: Grad or professional student standing.			
<b>7015</b>	<b>Public Health Data Analytics II</b>	<b>G</b>	<b>3</b>
The focus of this course is on the appreciation of data analytics as applied to current and emerging public health issues. Prereq: 5015, or permission of instructor.			
<b>7040</b>	<b>Public Health Organization</b>	<b>G</b>	<b>3</b>
Review of the historical background leading to the evolution of public health with a focus on the contemporary practice of public health; a review of current policy and practice; and, an outlook for the future of public health.			
<b>7189</b>	<b>Applied Practice Experience for Public Health</b>	<b>G</b>	<b>1 - 6</b>
Applied practice experience. Prereq: Enrollment in Master of Public Health (MPH-MP or MPHPEP-MP) degree program, and permission of advisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.			

## 400 Public Health

### 7350.02 Topics in Applied Public Health Practice - Leadership G 1 - 3

Includes theory and applications relevant to specific rubrics of applied public health practice, with a theme of public health management and leadership.  
Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.

### 7996 Integrative Learning Experience Seminar for MPH-PEP Students G 1

The goal of this course is to facilitate students through the process of planning and developing their Integrative Learning Experience.  
Prereq: Permission of instructor. This course is graded S/U.

### 7998 Integrative Learning Experience for Public Health G 1 - 3

Final project for MPH degree to demonstrate synthesis of foundational and concentration competencies applicable to a public health topic.  
Prereq: Enrollment in Master of Public Health (MPH-MP or MPHPEP-MP) degree program, and permission of advisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

### 7999 Thesis Research in Public Health G 1 - 12

Research for master's students: Thesis research.  
Prereq: Enrollment in MS degree program, and permission of instructor. Repeatable. This course is graded S/U.

### 8802 Seminar for Graduate Interdisciplinary Specialization in Demography G 3

Course required for students enrolled in the Graduate Interdisciplinary Specialization in Demography (GISD). Presents an introduction to demography (the study of populations) and population health.  
Prereq: Grad standing, or permission of instructor with approval by Graduate School for undergraduate credit. Repeatable to a maximum of 12 cr hrs. Cross-listed in Sociol.

### 8998 Pre-Candidacy Research in Public Health G 1 - 12

Independent research for doctoral students: pre-candidacy.  
Prereq: Enrollment in PhD program. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

### 8999 Post-Candidacy Research in Public Health G 1 - 12

Independent research for doctoral students: post-candidacy.  
Prereq: Enrollment as PhD Candidate in Public Health Program. Repeatable. This course is graded S/U.

## Public Health: Biostatistics

### 2210 Biostatistics for Public Health Research U 3

Hands-on experience using statistical tools to answer real-world questions. Students will design and implement a short survey and analyze their results. Emphasis on analysis of actual survey data using statistical software. Statistical topics include numerical/graphical summaries, measures of association, and hypothesis testing. Focus is on interpretation, not calculation.  
Prereq: Stat 1350, 1450, or equiv.

### 2210H Honors Biostatistics for Public Health Research U 3

Hands-on experience using statistical tools to answer real-world questions. Students will design and implement a short survey and analyze their results. Emphasis on analysis of actual survey data using statistical software. Statistical topics include numerical/graphical summaries, measures of association, and hypothesis testing. Focus is on interpretation, not calculation.  
Prereq: Honors standing, and Stat 1350 (135) or 1450 (145), or equiv; or permission of instructor.

### 3193 Individual Studies in Biostatistics U 1 - 6

Individual studies in Biostatistics focusing on applied topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 6 completions. This course is graded S/U.

### 5280 Introduction to Genomic Data Analysis U G 2

Provides an in-depth analysis of a specific question to which genomic methods are applied. Intersperses experimental methods and statistical analysis of biological data. Some experience with programming is recommended.  
Prereq: Jr standing or above, and Math 1151 or 1156, Stat 2450 or 2480, and Biology 1113 or MolGen 5660; or Grad standing; or permission of instructor.

### 6210 Design and Analysis of Studies in the Health Sciences I G 3

Theory and application of basic statistical concepts for design of studies in health sciences, integrated with statistical software applications.  
Prereq: Grad standing in PubHlth, or enrollment in MS Pharmacology program, or permission of instructor. Not open to students with credit for 701.

### 6211 Design and Analysis of Studies in the Health Sciences II G 3

A second course in applied biostatistical methods with an emphasis on regression methods commonly used in the health sciences. The focus is on linear regression and ANOVA. Integrated with use of computer statistical packages.  
Prereq: A grade of B- or above in 6210 (701), or permission of instructor. Not open to students with credit for 702.

### 6250 Regression Methods for the Health Sciences G 3

The course will focus primarily on regression models for the different generic problems including methods for hypothesis testing, evaluating assumptions, confounding, and selection of predictors.  
Prereq: 6211, or permission of instructor.

### 6260 Ethics in Biostatistics G 1

This course examines ethical challenges related to research design, data collection, data integrity and stewardship, data analysis and interpretation, and data reporting in the conduct of public health and biomedical research.  
Prereq: Enrollment in MPH-MP, PUBHLTH-MS, or BIOSTAT-PH with Biostatistics specialization; or permission of instructor.

### 6270 Introduction to SAS for Public Health Students G 2

Introduction to programming using SAS software to accomplish public health data management and analysis.  
Prereq: Grad standing in PubHlth, or permission of instructor. Not open to students with credit for Stat 5740 or 6740.

### 7193 Individual Studies in Biostatistics G 1 - 6

Independent study in Biostatistics.  
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 6 completions. This course is graded S/U.

### 7194 Group Studies in Biostatistics G 1 - 3

Group studies in biostatistical methods. Format will include lectures, readings, presentations and discussions in an area of special interest to students and faculty.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.

### 7215 Design and Analysis of Clinical Trials G 2

Design, monitoring, and analysis of clinical trials; includes protocol development, randomization schemes, sample size methods, and ethical issues.  
Prereq: Stat 5301, or PubHBio 6210, or equiv; or permission of instructor. Not open to students with credit for Stat 6615 (BioStat 615). Cross-listed in Stat 6615.

### 7220 Applied Logistic Regression G 3

Theoretical and practical training in statistical modeling of a categorical response variable; conditional and unconditional models, assessment of model performance, determination of scale.  
Prereq: A grade of B- or above in 6211 (702.xx). Not open to students with credit for 606.

### 7225 Survey Sampling Methods G 3

Sampling from finite populations, simple random, stratified, systematic and cluster sampling design, ratio and regression estimates, non-sampling errors, models.  
Prereq: 6211 (703) or Stat 5301 (529), or equiv. Not open to students with credit for Stat 6510 (651). Cross-listed in Stat 6510.

### 7230 Applied Longitudinal Data Analysis G 3

Statistical models and methods for the analysis of data arising from longitudinal studies with repeated measurements on subjects over time.  
Prereq: 6211, Stat 6450, or 6950. Not open to students with credit for 624.

### 7235 Applied Survival Analysis G 3

Introduction to time-to-event data analysis. Topics include summary statistics, non-parametric methods, semiparametric and parametric models, and competing risks analysis. Focus is on analysis of health data using statistical software.  
Prereq: 6211, Stat 6450, or 6950. Not open to students with credit for Stat 6605 (BioStat 605). Cross-listed in Stat 6605 (BioStat 605).

### 7240 Applied Statistical Analysis with Missing Data G 3

Models and methods for the dataset with missing values, including imputation, likelihood-based, and Bayesian models.  
Prereq: 6211 (703), or Stat 6201, or 6302, or 6802 (622), or 6302, or 6450, or 6950, or permission of instructor. Not open to students with credit for Stat 6520 (652). Cross-listed in Stat 6520.

### 7245 Biostatistical Collaboration G 2

Basic biomedical research methodologies; collaborate with biomedical researchers to design experiments and plan analyses; protocol preparation; professional skills development; statistical report preparation.  
Prereq: Grad standing and permission of instructor; sufficient coursework in Stat or BioStat to serve as a biostatistical consultant. Not open to students with credit for Stat 7755 (BioStat 709). Cross-listed in Stat 7755 (BioStat 709). This course is graded S/U.

### 7250 Special Topics G 1 - 6

Regular class on special topics in biostatistics. Format will include lectures, readings, presentations and discussions in an area of special interest to students and faculty.  
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.

### 7255 Introduction to Causal Inference in Health Science Research G 3

This is an introduction course to the commonly used statistical methods for causal inference. The course starts with potential outcome framework as the conceptual foundation for inferring causality.  
Prereq: B- or higher in 6211, or permission of instructor.

**8230 Advanced Longitudinal Data Analysis G 3**

Classical and modern statistical approaches for continuous and discrete longitudinal data. Random effects and growth curve models, measurement error, generalized estimating equations, estimation with missing data, multivariate longitudinal data.  
Prereq: Stat 6802 (622) and 6950 (645). Not open to students with credit for Stat 7470 (726). Cross-listed in Stat 7470 (726).

**8235 Advanced Regression Modeling of Time-to-Event Data G 3**

Advanced topics in survival analysis. Proportional hazards models, parametric regression models, length-bias and prevalent sampling, multivariate survival analysis, counting processes, recurrent events.  
Prereq: Stat 6802 (622) and 6950. Not open to students with credit for 706 or Stat 7605. Cross-listed in Stat 7605.

**8450 Stochastic Epidemic Models G 3**

Introduces the basic methods for analyzing large population epidemic data from the viewpoint of the stochastic processes theory. The course will cover the basic SIR (susceptible-infective-removed) epidemic models both under the homogenous and restricted contact structures.  
Prereq: Stat 6801, and 6540 or 7540; or permission of instructor. Cross-listed in Stat.

**8899 Doctoral Seminar G 1 - 3**

Seminar for doctoral students in Biostatistics.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

**Public Health: Environmental Health Sciences****3193 Individual Studies in Environmental Health Sciences U 1 - 6**

Individual Studies in Environmental Health Sciences.  
Prereq: Permission of instructor. This course is graded S/U.

**3310 Current Issues in Global Environmental Health U 3**

Fundamental concepts and principles of environmental health are presented through a critical review and discussion of current issues in global environmental health.

**3320 Fundamentals of Environmental Health Risk Assessment U 3**

The scientific process used by governmental agencies to evaluate public health threats due to environmental contamination. An orientation to the fundamental and applied components of risk assessment including: hazard identification, toxicology/dose-

**3330 Global Pandemics and Public Health U 3**

This course summarizes major global pandemics, including communicable (such as COVID-19) and noncommunicable (such as obesity) diseases that are current and from recent history, emphasizes public health threat detection and response, reviews related research articles from high impact journals, and provides a platform so that critical and major questions can be discussed and debated.

**4325 Climate Change and Human Health U 3**

Recognize current controversies about climate change, summarize the evidence about climate change on human health, and identify major human diseases associated with climate change.

**4330 Environmental Epigenetics U 3**

The course will provide a solid foundation in epigenetics and introduce the basic mechanisms of epigenetic control of gene expression, major laboratory methods, and research applications of in molecular biology, epidemiology, and the environmental sciences.  
Prereq: Biology 1113 or 1114, or permission of instructor.

**4530 Food Safety and Public Health U 2**

Principles and practice of food safety; transmission, inactivation and control of foodborne pathogens, hazards, toxins and allergens; risk assessment, sanitation, and pest control in foods.  
Cross-listed in FdScTe 4536.

**5315 Principles of Toxicology U G 3**

Fundamentals of dose-response, exposure, disposition and biotransformation of chemicals in mammalian systems; actions of toxicants in major organ systems.  
Prereq: Not open to students with credit for 732.

**5325 Principles of Occupational Health Science U G 3**

Principles and practice of occupational health, including, among other topics, a history of the discipline and in-depth consideration of occupational hazards and risks, including types, sources, exposures and health impacts.  
Prereq: Not open to students with credit for 830.

**5335 Ecology of Infectious Diseases U G 3**

This course provides an introduction to the ecology of infectious diseases. We will investigate infectious disease transmission and control in single- and multi-host systems and for vector-borne diseases.  
Prereq: One undergrad-level Biology course, or permission of instructor.

**5340 Air Contaminants and Public Health U G 3**

This course will introduce students to the concept of air quality and will focus on the relatedness between its pollution and morbidity. Specifically, students will learn about the categories and types of air contaminants, their natural and anthropogenic sources, and the respiratory and extra-pulmonary effects of air pollution.

**5345 Modeling Transmission and Control of Infectious Diseases in Humans and Animals U G 3**

Provides an introduction to applied infectious disease modeling. Students will learn how the susceptible, infected, removed (SIR) model can represent infectious disease transmission.  
Prereq: Biology 1101, 1113, or equiv., or permission of instructor. Cross-listed in VetPrev 8830.

**5395 Engineering Design for Environmental Health U G 3**

Students in this course will learn how to incorporate health information into the engineering design process. This material complements risk assessment by focusing on the design of engineering systems. We will discuss balancing financial, health, performance, & other considerations. Quantitative analysis will be conducted in soil, water, air, buildings, and occupational health scenarios.  
Prereq: Math 1151 or 1161.01 or 1161.02 or equiv., and Chem 1210 or 1250 or equiv., and enrollment in CivilEn or EnvEng or PubHlth-BS with a specialization in Environmental Public Health; or Grad standing; or permission of instructor. Cross-listed in EnvEng 5195.

**6300 Environmental Health Science Issues in Health Administration G 1½**

In this course, we will consider environmental health sciences as a cornerstone to public health.  
Prereq: Enrollment in HSMP-MHA, or permission of instructor.

**6310 Principles of Environmental Health Science G 3**

Survey of environmental influences on human health and strategies for prevention considering source emissions, environmental fate and transport, human exposure, dose, and biological effects.  
Prereq: Not open to students with credit for 731.

**6315 Advanced Environmental Health Science G 3**

Survey of environmental influences on human health and strategies for prevention considering source emissions, environmental fate and transport, human exposure, dose, biological effects, and ultimately disease associated with exposure.  
Prereq: Enrollment in EHS program, and Grad standing.

**6320 Global Health and Environmental Microbiology G 3**

Fundamentals and emerging issues of health significant microorganisms (bacteria, viruses, protozoa) from water, air, soil and food, and their sources, transmission routes, treatments, detection methods and study tools.  
Prereq: Not open to students with credit for 730. Cross-listed in FdScTe.

**6325 Climate Change and Human Health G 3**

Global climate change may have considerable direct and indirect impacts on human health. This course will be based on scientific facts, focusing on both natural phenomena and anthropogenic activities, with emphasis on associations between disease initiation and progression in humans.  
Prereq: Grad or professional student standing, or permission of instructor.

**6330 Environmental Epigenetics G 3**

The course will provide a solid foundation in epigenetics and introduce the underlying mechanisms of epigenetic control of gene expression, major laboratory methods, and research applications in molecular biology, epidemiology, and the environmental sciences.  
Prereq: Credit for college level Biology (or related discipline) course, or permission of instructor.

**6390 Major Human Diseases in Global Public Health G 3**

Public health is focused on preventing illnesses and injuries or intervening to decrease the impact to populations of people. Emphasize on basic physiology, pathophysiology, and clinical evaluation of major human diseases that have significant global public health impact epidemiologically, politically, and economically with a focus on disease causes and prevention.  
Prereq: Not open to students with credit for 7390.

**7193 Individual Studies in Environmental Health Sciences G 1 - 6**

Individual studies in Environmental Health Sciences focusing on applied topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 6 completions. This course is graded S/U.

**7194 Group Studies in Environmental Health Sciences G 1 - 3**

Group studies in Environmental Health Sciences.  
Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

**7360 Water Contamination: Sources and Health Impact G 3**

Topics focus on understanding the sources, the transport mechanisms and the fate of microbial and chemical contaminants in water, human exposure risks, tracking methods, linking to other environmental matrices and the public health impacts.  
Prereq: Not open to students with credit for 729.

**7365 Environmental and Human Health Risk Assessment G 3**

Introductory course that includes discussion of a variety of topics in human exposure and related risk assessment.

**7375 Quantitative Microbial Risk Analysis Modeling G 3**

This course will outline the fundamental sciences and their application in microbial risk modeling. Students will engage in lectures and project-based learning culminating in a functioning microbial risk model.  
Prereq: Grad level Stat course, or permission of instructor.

## 402 Public Health: Environmental Health Sciences

<b>7380</b>	<b>Exposure Science Monitoring Techniques</b>	<b>G</b>	<b>3</b>
Environmental health science is a multidiscipline profession focusing mainly on public (human) health issues related to food/water/beverage sanitation, and water, air and land contamination and pollution. Emphasis on the principles and practices of human exposure monitoring of contaminants in air, water, soil, and food including field sampling, analytical instrumentation, and methods.			
<b>7899</b>	<b>Seminar in Environmental Health Sciences</b>	<b>G</b>	<b>1 - 3</b>
Seminar on topics that are relevant to students enrolled in programs in the division of environmental health sciences. Repeatable to a maximum of 9 or hrs or 9 completions. This course is graded S/U.			
<b>8340</b>	<b>Molecular Techniques for Environmental Health Sciences</b>	<b>G</b>	<b>3</b>
Practical introduction to molecular techniques, as applied to research in environmental health sciences. Prereq: Not open to students with credit for 835.			
<b>8899</b>	<b>Doctoral Seminar in Environmental Health Sciences</b>	<b>G</b>	<b>1 - 3</b>
Doctoral level seminar on topics that are relevant to students enrolled in the PhD program in health environmental health sciences. Repeatable to a maximum of 9 or hrs or 9 completions. This course is graded S/U.			

## Public Health: Epidemiology

<b>2410</b>	<b>Introduction to Epidemiology</b>	<b>U</b>	<b>3</b>
Introduction to the study of public health; history, methods, applications, and issues in epidemiology.			
<b>3193</b>	<b>Individual Studies in Epidemiology</b>	<b>U</b>	<b>1 - 6</b>
Individual Studies in Epidemiology. Prereq: Permission of instructor. Repeatable to a maximum of 16 or hrs or 6 completions. This course is graded S/U.			
<b>3410H</b>	<b>Honors Case Studies in Public Health</b>	<b>U</b>	<b>3</b>
This is an advanced undergraduate course in epidemiology that is designed for Honors students in Public Health or a related field. Students will learn about how epidemiology is used in the field of Public Health through a case study approach. Prereq: Honors standing, and 2410.			
<b>4410</b>	<b>Social Epidemiology</b>	<b>U</b>	<b>3</b>
This course focuses on how social factors, such as education, neighborhood context, & structural & institutional racism are related to various population health outcomes. Students will learn theories that inform how social determinants of health are measured, & how epidemiologists use these measures to identify determinants of disease & ill health among populations, especially marginalized groups. Prereq: 2410, or permission of instructor.			
<b>4432</b>	<b>Injury: A Public Health Problem</b>	<b>U</b>	<b>3</b>
This introductory course in injury prevention & control is designed primarily for upper-division undergraduates. Students will be exposed to/learn to develop skills such as summarizing research findings, translating & communicating these findings to an identified audience, & utilizing policy & advocacy for initiating public health change as it relates to injury prevention and control. Prereq: 2410, and PubHHBP 3510; or permission of instructor.			
<b>4437</b>	<b>Cancer Epidemiology</b>	<b>U</b>	<b>3</b>
Cancer epidemiology is the study of factors affecting the occurrence of cancer. This course will familiarize students with basic concepts, data sources, and analytic methods commonly used in cancer epidemiology research and practice. Prereq: 2410.			
<b>5411</b>	<b>Outbreak Investigations</b>	<b>U G</b>	<b>3</b>
Principles and practice of field epidemiology, including outbreak investigation and disease surveillance. Prereq: 2410, or Grad standing, or permission of instructor. Not open to students with credit for 615.			
<b>5412</b>	<b>Infectious Diseases in the Developing World</b>	<b>U G</b>	<b>3</b>
Introduction to the study of infectious diseases in the developing world. Recommended: 2410. Prereq: Not open to students with credit for 718.			
<b>5421</b>	<b>Mathematics of Infectious Disease Dynamics</b>	<b>U G</b>	<b>3</b>
Provides an introduction to mathematical modeling of infectious diseases, including techniques for building and analyzing disease models, and discussions of calibration and comparison of models with data. This course is intended for graduate students in public health or other related disciplines and for upper level undergraduate and graduate mathematics students. Prereq: Math 1152, 1172, or 153; or permission of instructor. Cross-listed in Math.			
<b>5438</b>	<b>Cardiovascular Disease Epidemiology</b>	<b>U G</b>	<b>3</b>
Introduction to the epidemiology of cardiovascular disease; risk factors, specific diseases, diagnostic procedures; review of classic and current studies. Prereq: 2410, 6410, or 6430; or permission of instructor. Not open to students with credit for 817.			

<b>6410</b>	<b>Principles of Epidemiology</b>	<b>G</b>	<b>3</b>
Introduction to the nature and scope of epidemiology; survey of basic epidemiological methods and their application to selected acute and chronic health problems. For non-majors. Prereq: Not open to students with credit for 6430.			
<b>6411</b>	<b>Biological Basis of Public Health</b>	<b>G</b>	<b>3</b>
Molecular and epidemiologic evidence of biological mechanisms in major diseases of concern for public health. Prereq: Grad standing in Public Health, or permission of instructor. Not open to students with credit for 704.			
<b>6412</b>	<b>Basic Principles in Clinical and Translational Science</b>	<b>G</b>	<b>2</b>
Identification of clinical and translational research issues, assessment of the literature, ethically responsible research, cross-disciplinary training and mentoring. Prereq: Enrollment in MPH-CTS program, or permission of instructor. Repeatable to a maximum of 2 completions. This course is graded S/U.			
<b>6413</b>	<b>Conducting and Communicating Research in Clinical and Translational Science</b>	<b>G</b>	<b>2</b>
Design and writing of protocol, study methods and implementation, community engagement, informatics, translational teamwork. Scientific communication skills and dissemination of clinical and translational science. Prereq: Enrollment in MPH-CTS program, or permission of instructor. Repeatable to a maximum of 2 completions. This course is graded S/U.			
<b>6415</b>	<b>Nutrition in Public Health</b>	<b>G</b>	<b>3</b>
Relationships between dietary intake and diseases affecting the public health. Prereq: 6410 or 6430, or permission of instructor.			
<b>6430</b>	<b>Epidemiology I</b>	<b>G</b>	<b>4</b>
Introduction to the nature and scope of epidemiology; survey of basic epidemiological methods and their application to selected acute and chronic health problems. Lecture and laboratory sessions. Prereq: Enrollment in MPH-Epidemiology, or any Public Health MS or PhD program, or permission of instructor. Not open to students with credit for 710.			
<b>6431</b>	<b>Design and Implementation of Health Surveys</b>	<b>G</b>	<b>3</b>
Introduction to health survey methods, with public health applications. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 705.			
<b>6432</b>	<b>Injury Epidemiology</b>	<b>G</b>	<b>2</b>
Introduction to injury epidemiology; historical context, trends, research methods and issues; survey of areas of injury epidemiology and prevention. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 714.			
<b>6435</b>	<b>Chronic Disease Epidemiology</b>	<b>G</b>	<b>3</b>
Survey of the epidemiology of chronic diseases, including cancer, heart disease, stroke, diabetes mellitus, chronic obstructive pulmonary disease, and neurodegenerative diseases. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 814.			
<b>6436</b>	<b>Infectious Disease Epidemiology</b>	<b>G</b>	<b>3</b>
Introduction to the epidemiology of infectious diseases, with focus on basic methods for investigation, control, and prevention of communicable disease. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 815.			
<b>6437</b>	<b>Cancer Epidemiology</b>	<b>G</b>	<b>3</b>
Epidemiology of cancer, including etiology, risk factors, neoplastic processes, screening, control; application of statistical methods; molecular genetic basis of carcinogenesis. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 816.			
<b>6440</b>	<b>Reproductive and Perinatal Epidemiology</b>	<b>G</b>	<b>3</b>
Epidemiology of reproductive and perinatal health and methodologic challenges unique to this area. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 820.			
<b>6441</b>	<b>Women's Health Issues</b>	<b>G</b>	<b>3</b>
Overview of issues related to women's health from epidemiological and behavioral perspectives. Prereq: 6410 or 6430, or permission of instructor. Not open to students with credit for 818.			
<b>6442</b>	<b>Social Epidemiology</b>	<b>G</b>	<b>3</b>
Social and structural contributors to the distribution of health and disease in populations with emphasis on measurement and methodological challenges. Prereq: 4410, 6410, 6430, or PubHlth 6001; and Grad standing; or permission of instructor.			
<b>7193</b>	<b>Individual Studies in Epidemiology</b>	<b>G</b>	<b>1 - 6</b>
Individual Studies in Epidemiology. Prereq: Permission of instructor. Repeatable to a maximum of 16 or hrs or 6 completions. This course is graded S/U.			
<b>7194</b>	<b>Group Studies in Epidemiology</b>	<b>G</b>	<b>1 - 3</b>
Group Studies in Epidemiology. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs.			
<b>7410</b>	<b>Epidemiology II</b>	<b>G</b>	<b>4</b>
Design of epidemiologic studies including cross-sectional studies, case-control studies, cohort studies, clinical trials, and group-randomized trials. Prereq: 6430, or permission of instructor. Not open to students with credit for 711.			

## Public Health: Epidemiology 403

<b>7411</b>	<b>Epidemiology in Environmental Health</b>	<b>G</b>	<b>3</b>
Principles and application of epidemiologic methods in the investigation and control of health problems stemming from environmental hazards. Prereq: 6430, or permission of instructor. Not open to students with credit for 713.			
<b>7412</b>	<b>Principles and Procedures for Human Clinical Trials</b>	<b>G</b>	<b>3</b>
Principles and procedures for clinical professionals in the design, conduct and analysis of human clinical trials. Prereq: 7410 and PubHBio 6211, or permission of instructor. Not open to students with credit for 715.			
<b>7430</b>	<b>Epidemiology III</b>	<b>G</b>	<b>4</b>
Analysis and interpretation of data from case-control and cohort studies and from clinical trials. Prereq: 7410 and 6211, or permission of instructor. Not open to students with credit for 712.			
<b>7431</b>	<b>Epidemiologic Methods</b>	<b>G</b>	<b>3</b>
Critique and justification for methods of designing, analyzing and interpreting epidemiological data; social, historical and philosophical foundations of epidemiologic methods. Prereq: 7410 and PubHBio 6211, or permission of instructor.			
<b>7830</b>	<b>Phytochemicals in Human Health: Crops to the Clinic</b>	<b>G</b>	<b>3</b>
Covers the function and control of phytochemicals in plants, the function of phytochemicals in human health, delivery of phytochemicals through foods in the diet, strategies when designing studies examining foods for health, and policy and sustainability considerations. Prereq: Biochem 4511 (511) or 5613 (613), or equiv; or permission of instructor. Not open to students with credit for FdScTe 7810. Cross-listed in FdScTe, HumnNtr, BSGP, and HCS.			
<b>7998</b>	<b>Integrative Learning Experience Seminar</b>	<b>G</b>	<b>1</b>
The goal of this course is to facilitate students through the process of developing their Integrative Learning Experience (ILE). By the end of the semester, it is expected that students will have submitted their ILE proposals and literature reviews, ILE approval form, and their application to the IRB and other review boards as needed. Prereq: Enrollment in MPH program in Epidemiology. This course is graded S/U.			
<b>8411</b>	<b>Epidemiology of Obesity</b>	<b>G</b>	<b>3</b>
Prevalence, trends, risk factors, measurement, outcomes and issues related to obesity; critical reading and discussion of research on epidemiology of obesity. Prereq: 7410 and PubHBio 6211, or permission of instructor. Not open to students with credit for 819.			
<b>8413</b>	<b>Molecular Epidemiology of Infectious Diseases</b>	<b>G</b>	<b>3</b>
Provides students with the knowledge and skills to study disease outbreaks in humans and animals using molecular biology techniques. Recommended basic knowledge of infectious diseases and molecular biology. Prereq: Permission of instructor. Not open to students with credit for VetPrev 700 or 724. Cross-listed in VetPrev 8700.			
<b>8430</b>	<b>Epidemiology IV</b>	<b>G</b>	<b>4</b>
Students will gain hands-on experience working with data from existing epidemiological studies. Through structured projects, students learn to develop appropriate research questions, and analyze, interpret, and present their results. Prereq: 7430 and PubHBio 6211, or permission of instructor.			
<b>8899.01</b>	<b>Professional Skills for Public Health Doctoral Students</b>	<b>G</b>	<b>1</b>
To facilitate professional development of PhD students in the Division of Epidemiology. The course will focus on goal setting, mentorship, scientific writing, and oral presentations. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.			
<b>8899.02</b>	<b>Doctoral Seminar in Epidemiology: Teaching Methods</b>	<b>G</b>	<b>2</b>
Seminar for doctoral students in epidemiology with a focus on teaching methods. Prereq: Enrollment in PhD program. Not open to students with credit for 875. This course is graded S/U.			
<b>8899.03</b>	<b>Epidemiology: History, Social Context, and Ethics</b>	<b>G</b>	<b>1</b>
Designed for first year PhD students in the Division of Epidemiology. The purpose of the course is to provide students with an understanding of the history of epidemiology, including its development to its current form. Prereq: Enrollment in Public Health PhD program. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>8899.04</b>	<b>Research Questions and Study Design in Epidemiology</b>	<b>G</b>	<b>1</b>
The purpose of this course is to assist students in identifying research questions and considering appropriate study designs for the research questions. Prereq: Enrollment in Epidemiology PhD program, or permission of instructor. This course is graded S/U.			
<b>8899.05</b>	<b>Application of Advanced Methods in Epidemiology</b>	<b>G</b>	<b>1</b>
The purpose of this course is to examine contemporary methods in epidemiology and understand their appropriate applications. This course is graded S/U.			

## Public Health: Health Behavior & Health Promotion

<b>3193</b>	<b>Individual Studies in Health Behavior and Health Promotion</b>	<b>U</b>	<b>1 - 6</b>
Individual studies in Health Behavior and Health Promotion focusing on applied topics. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 6 completions. This course is graded S/U.			
<b>3510</b>	<b>Role of Behavior in Public Health</b>	<b>U</b>	<b>3</b>
Introduction to concepts of health behavior and its role in public health; social determinants of health; applications to selected community health problems and issues.			
<b>5520</b>	<b>Public Health in Action</b>	<b>U G</b>	<b>2</b>
Directed service learning group project in partnership with a public health agency.			
<b>6510</b>	<b>Preventing Disease and Promoting Health through Behavioral Science</b>	<b>G</b>	<b>3</b>
Examination of behavioral and social science concepts as the basis for public health practice; topics include transferring knowledge, motivating and aiding behavior change efforts, and working with the community. Prereq: Grad standing, and enrollment in Public Health program. Not open to students with credit for 720.			
<b>6515</b>	<b>Advanced Preventing Disease and Promoting Health</b>	<b>G</b>	<b>3</b>
This course will address the philosophical underpinnings, health behavior theories, and strategies for effective behavioral and social change efforts in public health. Prereq: Enrollment in College of Public Health Graduate Program with specialization in Health Behavior and Health Promotion.			
<b>6535</b>	<b>Community Engagement and Collaborative Community Problem-Solving</b>	<b>G</b>	<b>3</b>
This class provides the opportunity to review a number of concepts critical to collaborative community problem-solving. A broad range of literature will be reviewed and students will have the opportunity to experience several simulated processes unique to the collaborative problem-solving process. Prereq: 6510, or permission of instructor.			
<b>7193</b>	<b>Individual studies in health behavior and health promotion</b>	<b>G</b>	<b>1 - 6</b>
Individually designed study of selected topics in health behavior and health promotion. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 16 completions. This course is graded S/U.			
<b>7520</b>	<b>Community Health Assessment</b>	<b>G</b>	<b>2</b>
Models of community health assessment; skills in identifying, analyzing and integrating information concerning community resources and needs. Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor.			
<b>7522</b>	<b>Program Planning and Implementation</b>	<b>G</b>	<b>3</b>
Planning and implementation of programs to address public health issues in defined populations; development of a health promotion program for a specific community partner. Prereq: Enrollment in Public Health, or Grad standing; or permission of instructor. Not open to students with credit for 827.			
<b>7528</b>	<b>Foundations of Professional Practice in Health Promotion</b>	<b>G</b>	<b>2</b>
Professional practice settings and expectations for health promotion; application of health promotion theories and perspectives to community problems. Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor. Not open to students with credit for 820.			
<b>7532</b>	<b>Program Evaluation in Public Health</b>	<b>G</b>	<b>3</b>
Examination of evaluation models for public health programs; exploration of philosophical and scientific issues in evaluation; and skill building in both qualitative and quantitative evaluation methods. Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor.			
<b>7534</b>	<b>Research Methods in Health Behavior and Health Promotion</b>	<b>G</b>	<b>3</b>
Social science research methods emphasizing methods used to assess the dimensions of health-relevant behaviors and community-based prevention research. Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor. Not open to students with credit for 834.			
<b>7542</b>	<b>Settings and Special Populations in Health Promotion</b>	<b>G</b>	<b>3</b>
Critical characteristics of principal settings in which health promotion interventions occur and populations to which they apply such as youth, elderly, racial and ethnic minorities. Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor. Not open to students with credit for 822.			
<b>7544</b>	<b>Fundamental Determinants of Population Health and Implications for Public Health</b>	<b>G</b>	<b>3</b>
Presents the ideas that population health is determined by factors outside of health care and individual behavior occurs within a social context. Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor. Not open to students with credit for 830.			
<b>7550</b>	<b>Special Topics in Health Behavior and Health Promotion</b>	<b>G</b>	<b>1 - 6</b>
Regular class on topics that are relevant to students enrolled in programs in the Division of Health Behavior and Health Promotion. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs or 6 completions.			

## 404 Public Health: Health Behavior & Health Promotion

**7558 Policy as a Prevention Strategy** G 2

This course will prepare graduate students on the key elements of how policy can be used as an intervention to promote primary, secondary, and tertiary prevention.  
Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor.

**7562 Theoretical Approaches to Health Behavior Change in Public Health Applications** G 2

Major theories drawn from social and behavioral science literature, pertinent to understanding and addressing problems in health behavior.  
Prereq: Enrollment in Public Health, and Grad standing; or permission of instructor.

**7564 A Public Health Approach to Adolescent Health** G 2

Focuses on the health of adolescents in the United States. Emphasis is on examining health and risk behaviors from developmental & contextual perspectives with reference to policies and programs for preventing health problems and promoting the well-being of this population.

**7570 Obesity, a Multidisciplinary Foundation** G 2

This course examines the context, causes, and consequences of obesity in the United States today. We will begin with an examination of trends in obesity and a description of the scope of the problem. Next, the course will examine physiological, psychological, sociological, and economic factors that contribute to the obesity problem.  
Cross-listed in HDF5.

**7899.01 Seminar: Integrative Learning Experience I** G 1

The purpose of the integrative learning experience is to provide students with the opportunity to integrate and synthesize knowledge and experience obtained during their academic course of study. Most culminating projects focus on: (A) Community assessment; (B) Program planning and implementation; (C) Program evaluation or (D) Other projects as approved by your advisor.

Prereq: Open only to MPH Health Behavior Health Promotion students preparing for their integrative learning experience. This course is graded S/U.

**7899.02 Seminar: Integrative Learning Experience II** G 1

The purpose of the integrative learning experience is to provide students with the opportunity to integrate and synthesize knowledge and experience obtained during their academic course of study. Most integrative learning experiences focus on: (A) Community assessment; (B) Program planning and implementation; (C) Program evaluation or (D) Other projects as approved by your advisor.

Prereq: Open only to MPH Health Behavior Health Promotion students preparing for their culminating project. This course is graded S/U.

**8562 Advanced Theory of Health Behavior Change in Public Health Applications** G 2

In-depth examination of theories pertinent to health behavior including history and critique of theoretical approaches.  
Prereq or concur: 7562.

**8899.01 First Year Doctoral Seminar in HBHP** G 1

Seminar concerning academic and professional development topics for Ph.D. students, with a focus on selecting research topics, reviewing research, course development, and other topics.  
Prereq: Enrollment in Health Behavior and Health Promotion Ph.D. Program. Repeatable to a maximum of 2 or hrs. This course is graded S/U.

**8899.02 Second Year Doctoral Seminar in HBHP** G 1

A seminar for Ph.D. students in Health Behavior and Health Promotion emphasizing the selection and development of research projects including proposing preparation and funding sources.

Prereq: Enrollment in PubHHBP Ph.D. Program. Repeatable to a maximum of 2 or hrs. This course is graded S/U.

### Public Health: Health Services Management & Policy

**3193 Individual Studies in Health Services Management and Policy** U 1 - 6

Individual Studies in Health Services Management and Policy.  
Prereq: Permission of instructor. Repeatable to a maximum of 16 or hrs or 6 completions. This course is graded S/U.

**3610 United States & International Health Care** U 3

Introduction to the history, organization and politics of the global health care system, critical review of selected issues using different analytic frameworks.

**3650 Health Economics for Health and Policy Students** U 3

This course is designed to provide an intuitive understanding of health economics and policy for non-economists. It will cover the basics and health markets and apply those concepts to policy applications. Economics 2001.01 recommended but not required.

**6609 Health Care Organization for Experienced Professionals** G 3

Analysis of arrangements for the organization, financing and delivery of health care services.

**6610 Introduction to Health Care Organization** G 3

Analysis of arrangements for the organization, financing, and delivery of health care services.  
Prereq: Not open to students with credit for 800.

**6611 Health and Health Care Services in the U.S.** G 3

This course provides an overview of the U.S. health care system. Topics covered include health and health care disparities, social determinants of health, health care access and utilization, financing of care through public and private health insurance, provider reimbursement, assessment of quality, quality improvement, and new forms of health care delivery and payment.

Prereq: Enrollment in MPH-HMP program, or HSMP-MHA program, or PUBHLTH-PH program, or permission of instructor. Not open to students with credit for 800.

**6615 Public Health Leadership and Organizational Behavior** G 3

This course introduces students to major theories and concepts of organizational behavior and leadership and applies these to challenges facing public health organizations.  
Prereq: Grad standing, or permission of instructor.

**6620 Critical Appraisal of Population Health Evidence** G 3

This course will provide practical experience in examining multiple sources of evidence on population health management and public health interventions and will introduce students to the tools used to perform systematic reviews.  
Prereq: Grad standing, or permission of instructor.

**6625 Leveraging Healthcare Data for Practice and Policy Change** G 3

This course will prepare students to develop questions for and utilize results from healthcare database research. Strengths and limitations of healthcare databases commonly used for research will be considered, and special attention will be devoted to nationally representative databases and local electronic medical record data.

Prereq: A grade of C- or higher in PubHEpi 6410 and PubHBio 6210; or permission of instructor.

**6630 Project Management for Health Care and Public Health** G 3

This course introduces students to the role of project management in executing successful projects. The course focuses on concepts & tools of basic project management, with a special emphasis on managing projects in health care & public health settings. Students will learn fundamental techniques for project planning, scheduling & monitoring through case studies, class exercises and assignments.

Prereq: Grad standing, or permission of instructor.

**7193 Individual Studies in Health Services Management and Policy** G 1 - 6

Study of individually designed topics not otherwise available in the curriculum.

Prereq: Permission of instructor. Repeatable to a maximum of 16 or hrs or 6 completions. This course is graded S/U.

**7194 Group Studies in Health Services Management and Policy** G 1 - 3

Group studies of special topics within health services management and policy.  
Repeatable to a maximum of 9 or hrs or 6 completions. This course is graded S/U.

**7601 Economic Analysis of Health Services** G 3

This course will cover applications of microeconomic analysis to the health services industry, with emphasis on the market structure and managerial decisions.

Prereq or concur: 6611, or permission of instructor. Not open to students with credit for 801.

**7602 Health Insurance and Payment Policy** G 3

This course examines the health insurance mechanisms used to pay for healthcare in the United States. The course will examine the U.S. system's origins, the incentives and policy implications that the system creates, past and present reforms, and how the US system compares to health care financing systems in other industrialized countries.

Prereq: Grad standing in HSMP: HSMP-MHA, MPH-MP with HMP specialization, or PUBHLTH-PH with HMP specialization, or permission of instructor. Not open to students with credit for 802.

**7603 Economic Evaluation of Health Care Programs** G 3

Intended to give students an overview of the theory and applications of cost-benefit analysis, cost-effectiveness analysis, cost-utility analysis and related forms of economic evaluation of interventions in the health care sector.

Prereq: Grad standing, or permission of instructor.

**7605 Introduction to Health Policy** G 3

Introduction to public policy concepts and processes as they apply to the organization, financing, and delivery of health services.

Prereq: 6611, or permission of instructor. Not open to students with credit for 805.

**7606 Applied Health Policy** G 3

Introduction to public policy concepts and processes as they apply to the organization, financing, and delivery of health services.

Prereq: 6609, or permission of instructor. Not open to students with credit for 805.

**7608 The Role of Science in Health Policy-Making** G 3

This course will explore the role that science, including social science, plays in public health & health services policy-making. It will consider the conditions under which scientific research findings do & do not influence policy-making with reference to the nature of scientific inquiry & of public policy; the intellectual, institutional, and practical similarities & differences between them.

## Public Health: Health Services Management & Policy 405

<b>7610</b>	<b>Public Health Law</b>	<b>G</b>	<b>3</b>
The course will focus on the use of legal tools to improve the public's health. The course will survey the legal framework in which the government may regulate for the public's health, addressing issues including the origins and scope of public health authority, constitutional limits on public health powers, emergency legal preparedness, and public health tort litigation. Cross-listed in Law 8810.			
<b>7611</b>	<b>Health Care Law for Managers</b>	<b>G</b>	<b>3</b>
Overview of the U.S. legal system as it applies to the U.S. health care field. Prereq: Grad standing in HSMP-MHA, or MPH-MP and HMP subplan, or PUBHLTH-PH and HMP subplan, or permission of instructor. Not open to students with credit for 811.			
<b>7612</b>	<b>Food and Drug Law</b>	<b>G</b>	<b>3</b>
This course explores various FDA law and policy issues related to the regulation of food, drugs, biologics, devices, and tobacco products. Cross-listed in Law 8811.			
<b>7613</b>	<b>Tobacco Regulation and Policy</b>	<b>G</b>	<b>2</b>
This course examines the regulation of tobacco, with a focus on the role of the US FDA. This course highlights the history, significant provisions, and effects of the 2009 Tobacco Control Act, as well as the vital role that public health researchers and professionals play in influencing how the FDA implements the Act.			
<b>7615</b>	<b>Health Services Organizational Management</b>	<b>G</b>	<b>3</b>
This course is designed to provide students with a strong foundation in health services management, focusing on human resources management and organizational behavior. Prereq: Grad standing in Public Health (MPH-HMP, MHA, or PhD) or permission of instructor. Not open to students with credit for 815.			
<b>7617</b>	<b>Health Services Leadership and Organizational Change</b>	<b>G</b>	<b>3</b>
Overview of leadership and organizational change theories, as well as the application of those theories to case studies in health sector organizations. Prereq: 7615 and Grad standing in the HSMP-MHA program, or permission of instructor. Not open to students with credit for 817.			
<b>7620</b>	<b>Health Services Finance I</b>	<b>G</b>	<b>3</b>
Principles of finance and accounting applied to health service organizations. Prereq: An introductory course in financial accounting, or permission of instructor. Not open to students with credit for 820.			
<b>7621</b>	<b>Health Services Finance II</b>	<b>G</b>	<b>3</b>
Continuation of 7620 emphasizing financial analysis, financial planning, and capital project analysis. Prereq: 7620, or permission of instructor. Not open to students with credit for 821.			
<b>7622</b>	<b>Health Services Financial Decision-Making</b>	<b>G</b>	<b>3</b>
Principles of financial decision-making in health service organizations, with emphasis on applications of decision support systems. Prereq: 7621, or permission of instructor. Not open to students with credit for 822.			
<b>7624</b>	<b>Health Economics for Experienced Professionals</b>	<b>G</b>	<b>3</b>
Designed for public health professionals who wish to enhance their knowledge of the economic principles that drive the health care system. The course will introduce you to the use of economic analysis and economic evaluation for healthcare decision making. Prereq: Not open to students with credit for 824.			
<b>7631</b>	<b>Strategic Management and Program Development</b>	<b>G</b>	<b>3</b>
Techniques and methods for strategic management and project planning in health care organizations and settings. Prereq: Enrollment in MHA program, or permission of instructor. Not open to students with credit for 831.			
<b>7632</b>	<b>Strategic Change for Public Health and Population Health Mgmt</b>	<b>G</b>	<b>3</b>
This course will provide students a foundation in the theories, concepts & methods of strategic planning and the management of organizational change as applied to public health & population health management endeavors.			
<b>7640</b>	<b>Mental Health &amp; Disability Policy</b>	<b>G</b>	<b>3</b>
Investigation of public policy in the area of mental health and disability and the politics that are the origin and result of these policies. Prereq: Not open to students with credit for 840.			
<b>7672</b>	<b>Clinical Rotations</b>	<b>G</b>	<b>1½</b>
Individual assignments within health care organizations to observe operations. Prereq: Grad standing in PubHHMP, or permission of instructor. Not open to students with credit for 870.02.			
<b>7673</b>	<b>Understanding Health Care Organization Data</b>	<b>G</b>	<b>1½</b>
Application of data from various sources to inform decision making in health services settings and in health policy. Prereq: PubHBio 6210, or permission of instructor. Not open to students with credit for 870.03.			
<b>7675</b>	<b>Human Resources Management in Health Care</b>	<b>G</b>	<b>1½</b>
Overview of human resources and its strategic importance to health care organizations. Prereq: Not open to students with credit for 870.05.			

<b>7676</b>	<b>Health Care Marketing</b>	<b>G</b>	<b>1½</b>
Overview of topics in marketing and communications and how they apply to health care delivery. Prereq: Not open to students with credit for 870.06.			
<b>7678</b>	<b>Approaches to Health Services Research</b>	<b>G</b>	<b>3</b>
Overview of the field of health services research and the role of health services research in improving health care delivery. Prereq: PubHBio 6210 and PubHEpi 6410, or permission of instructor. Not open to students with credit for 871.			
<b>7679</b>	<b>Quality &amp; Patient Safety</b>	<b>G</b>	<b>1½</b>
Examination of quality management and quality measurement in health care with emphasis on patient safety. Repeatable to a maximum of 3 or hrs. This course is graded S/U.			
<b>7680</b>	<b>Operations Management for Health Service Organizations</b>	<b>G</b>	<b>3</b>
Concepts and techniques for managing operation in health service organizations; emphasis on management perspective and decision-making. Prereq: Grad standing in PubHHMP, or permission of instructor. Not open to students with credit for 880.			
<b>7682</b>	<b>Information Systems for Health Services Organizations</b>	<b>G</b>	<b>1½</b>
This course is designed to provide students with an understanding of issues in the management of information and information technology in health care organizations, the role of information technologies in improving organizational performance, and the application of information technologies in health service organizations. Prereq: 7680, or permission of instructor. Not open to students with credit for 882.			
<b>7683</b>	<b>Operations Management and System Design</b>	<b>G</b>	<b>3</b>
This course is designed to introduce students to fundamental theories, principles and practices for designing and managing operations. The course is structured to emphasize the unique aspects of process and system design in the health care organizations and in the community health system, including processes that cross organizational boundaries and include diverse stakeholders.			
<b>7684</b>	<b>Health Services Strategy and Marketing</b>	<b>G</b>	<b>3</b>
Students will learn principles, discipline, & analytic tools that comprise successful strategic management in healthcare organizations, including: strategic assessment, strategy development, implementation planning, & marketing. Emphasis will be placed on exploring strategic issues related to transitioning from volume to value-based models of care, impacts of ACA & population & community health. Prereq: Grad standing in Public Health - Health Services Management and Policy Master of Health Administration program, or permission of instructor. Not open to students with credit for 7631.			
<b>7685</b>	<b>Healthcare Management Consulting Practice</b>	<b>G</b>	<b>3</b>
To develop management consulting practice skills involving strategic thinking, planning, analysis, and implementation phases of consulting engagements. Prereq: Enrollment in HSMP-MHA program, or permission of instructor.			
<b>7686</b>	<b>Qualitative Methods for Health Research</b>	<b>G</b>	<b>3</b>
This course introduces students to the methods and uses of qualitative research applicable both to public health and to the full range of health sciences. Prereq: One or more graduate research methods courses (such as statistics, research design, survey research), and Grad standing; or permission of instructor.			
<b>7699</b>	<b>Seminar in Health Services Management and Policy</b>	<b>G</b>	<b>1 - 3</b>
Small group seminar with focus on integrative projects in health services management and policy. Prereq: Grad standing in PubHHMP, or permission of instructor. Repeatable to a maximum of 4 or hrs or 2 completions.			
<b>8671</b>	<b>Health Care Outcomes Measurement</b>	<b>G</b>	<b>2</b>
Evaluation of specific techniques for measuring outcomes in clinical and health services research studies. Prereq: Grad standing in PubHHMP, or permission of instructor.			
<b>8672</b>	<b>Advanced Topics in Health Policy</b>	<b>G</b>	<b>4</b>
Designed for doctoral and advanced masters students in the College of Public Health and other OSU colleges. It will provide students with a solid background of high-level policy scholarship on topics fundamental to the health care system. Prereq: 7605 or 7640; or permission of instructor.			
<b>8899</b>	<b>Doctoral Seminar in Health Services Management and Policy</b>	<b>G</b>	<b>1 - 2</b>
Doctoral level seminar on topics that are relevant to students enrolled in the PhD program in health services management and policy. Prereq: Grad standing in Public Health, or permission of instructor. Repeatable to a maximum of 9 or hrs or 6 completions. This course is graded S/U.			

Quechua

## 406 Quechua

### 5501.01 Beginning Quechua I: Classroom U G 4

Quechua 5501.01 (501) is a beginning language course for students with no previous study experience in Quechua. This course will be comprehensive, integrating culture and language from the southern Quechua family spoken in Peru.

Prereq: Not open to students with credit for 5501.51 or 501 or to native speakers. This course is available for EM credit. GE for lang course. FL Admis Cond course.

### 5501.51 Beginning Quechua I: Individualized Instruction U G 1 - 4

Quechua 5501.51 (501) is a beginning language course for students with no previous study experience in Quechua. This course will be comprehensive, integrating culture and language from the southern Quechua family spoken in Peru.

Prereq: Not open to students with credit for 5501.01 (501) or to native speakers. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

### 5502.01 Beginning Quechua II: Classroom U G 4

For students who have taken Quechua 5501.01 (501) or who have previous basic knowledge of Quechua at the beginning level. This course will be comprehensive, integrating culture and language from the southern Quechua family spoken in Peru.

Prereq: 5501.01 (501), or 4 cr hrs of 5501.51; or permission of instructor. Not open to students with credit for 5502.51 or 502 or to native speakers. This course is available for EM credit. GE for lang course. FL Admis Cond course.

### 5502.51 Beginning Quechua II: Individualized Instruction U G 1 - 4

For students who have taken Quechua 5501.01 or 5501.51 (501) or who have previous basic knowledge of Quechua at the beginning level. This course will be comprehensive, integrating culture and language from the southern Quechua family spoken in Peru.

Prereq: 5501.01 (501) or 4 cr hrs of 5501.51, or permission of instructor. Not open to students with credit for 5502.01 (502) or to native speakers. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

### 5503.01 Intermediate Quechua I: Classroom U G 4

For students who have taken Quechua 5502 (502) or who have previous basic knowledge of Quechua at the beginning/intermediate level. This course will be comprehensive, integrating culture and language from the southern Quechua family spoken in Peru.

Prereq: 5502.01 (502), or 4 cr hrs of 5502.51; or permission of instructor. Not open to students with credit for 5503.51 or 503 or to native speakers. This course is available for EM credit. GE for lang course. FL Admis Cond course.

### 5503.51 Intermediate Quechua I: Individualized Instruction U G 1 - 4

For students who have taken Quechua 5502 (502) or who have previous basic knowledge of Quechua at the beginning/intermediate level. This course will be comprehensive, integrating culture and language from the southern Quechua family spoken in Peru.

Prereq: 5502.01 (502), or 4 cr hrs of 5502.51; or permission of instructor. Not open to students with credit for 5503.01 (503) or to native speakers. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

### 5504.01 Intermediate Quechua II: Classroom U G 4

Quechua 5504.01 (504) is an intermediate language course intended for students with experience in Quechua. The variety taught will be from the southern Quechua family spoken in Bolivia and Peru. Closed to native speakers of this language.

Prereq: 5503.01 (503), or 4 cr hrs of 5503.51; or permission of instructor. Not open to students with credit for 5504.51. This course is available for EM credit. FL Admis Cond course.

### 5504.51 Intermediate Quechua II: Individualized Instruction U G 1 - 4

Quechua 5504.51 is an intermediate language course intended for students with experience in Quechua. The variety taught will be from the southern Quechua family spoken in Bolivia and Peru. Closed to native speakers of this language.

Prereq: 5503.01 (503), or 4 cr hrs of 5503.51; or permission of instructor. Not open to students with credit for 5504.01. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. FL Admis Cond course.

### 5505.01 Advanced Quechua I: Classroom U G 3

Quechua 5505.01 is an advanced language course intended for students with experience in Quechua. This course is comprehensive, integrating culture and language. It will be useful for students that want to travel to the Andean countries or who have an interest in studying Quechua language, culture and society. The variety taught is from the southern Quechua family spoken in Bolivia and Peru.

Prereq: 5504.01 or 4 cr of 5504.51, or permission of instructor. Students enrolled in Quechua 5501.01/51, 5502.01/51, 5503.01/51, and 5504.01/51 are not eligible to enroll simultaneously in subsequent levels of Quechua. FL Admis Cond course.

### 5505.51 Advanced Quechua I: Individualized Instruction U G 1 - 3

Quechua 5505.51 is an advanced language course intended for students with experience in Quechua. This course is comprehensive, integrating culture and language. It will be useful for students that want to travel to the Andean countries or who have an interest in studying Quechua language, culture and society. The variety taught is from the southern Quechua family spoken in Bolivia and Peru. Students enrolled in Quechua 5501.01/51, 5502.01/51, 5503.01/51, and 5504.01/51 are not eligible to enroll simultaneously in subsequent levels of Quechua.

Prereq: 5504.01 or 4 cr hrs of 5504.51, or permission of instructor. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is available for EM credit.

### 5506.01 Advanced Quechua II: Classroom U G 3

Quechua 5506.01 is an advanced language course intended for students with experience in Quechua. This course is comprehensive, integrating culture and language. It will be useful for students that want to travel to the Andean countries or who have an interest in studying Quechua language, culture and society. The variety taught is from the southern Quechua family spoken in Bolivia and Peru.

Prereq: 5505.01, or permission of instructor. FL Admis Cond course.

### 5506.51 Advanced Quechua II: Individualized Instruction U G 1 - 3

Quechua 5506.51 is an advanced language course intended for students with experience in Quechua. This course is comprehensive, integrating culture and language. It will be useful for students that want to travel to the Andean countries or who have an interest in studying Quechua language, culture and society. The variety taught is from the southern Quechua family spoken in Bolivia and Peru.

Prereq: 5505.01 or 3 credits of 5505.51, or permission of instructor. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is available for EM credit.

## Radiologic Sciences and Therapy

### 3089 Radiography Practicum I U 1 - 10

Clinical application of diagnostic radiographic and fluoroscopic imaging performed in radiology. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging departments of a clinical affiliate.

Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 10 cr hrs or 2 completions. This course is available for EM credit.

### 3189 Radiography Practicum II U 1 - 10

Clinical application of diagnostic radiographic and fluoroscopic imaging performed in radiology. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging departments of a clinical affiliate.

Prereq: 3089, and acceptance to the Radiography program.

### 3200 Evidence Based Practice in the Radiologic Sciences U 2

Introduction to radiologic sciences focusing on innovations impacting clinical practice. The scientific writing process is used to implement the process of analyzing and synthesizing credible evidence to advance clinical practice skills.

Prereq: Acceptance in the Radiologic Sciences and Therapy Division.

### 3200E Evidence Based Practice in the Radiologic Sciences U 2

Introduction to radiologic sciences focusing on innovations impacting clinical practice. The scientific writing process is used to implement the process of analyzing and synthesizing credible evidence to advance clinical practice skills.

Prereq: Honors standing, and enrollment in RadSci.

### 3289 Radiation Therapy Practicum I U 1 - 10

Clinical application of patient care, simulation and treatment procedures performed in Radiation Therapy. Emphasis is directed toward competently performing machine function and patient setup.

Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.

### 3310 Introduction to the Radiation Sciences U 3

Introduction to the fields in the radiation sciences. Radiation safety, patient care, and clinical practice principles will be emphasized. Application of principles will be reinforced in laboratory sessions.

Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.

### 3389 Radiation Therapy Practicum II U 1 - 10

Clinical application of patient care, simulation and treatment procedures performed in Radiation Therapy. Emphasis is directed toward competently performing machine function and patient setup.

Prereq: 3289, and enrollment in RadSci; or permission of instructor.

### 3411 Radiographic Procedures I U 3

Principles of radiography of the chest, bronchial tree, abdomen, alimentary tract, and appendicular skeleton, with application in the laboratory.

Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.

### 3412 Radiographic Procedures II U 3

Principles of radiography of the vertebral column, spinal canal, bony thorax, cerebral and visceral cranium, arthrography, urinary system, and reproductive systems.

Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.

### 3414 Radiation Therapy Equipment and Instrumentation U 4

An introduction to the terminology, treatment charting, simulation, beam alignment, machine components, and the technical aspects of treatment in a clinical environment.

Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.



## Radiologic Sciences and Therapy 407

<b>3425</b>	<b>Radiographic Imaging I</b>	<b>U</b>	<b>3</b>
Investigation of the principles of radiation production, radiation protection and radiologic image formation. Prereq: Enrollment in RadSci, or permission of instructor. Not open to students with credit for 425 or RadTech 425. This course is available for EM credit.			
<b>3430</b>	<b>General Concentration in Sonography 1</b>	<b>U</b>	<b>3</b>
An introduction to the sonography profession with an emphasis on OB/GYN medical sonography. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3431</b>	<b>General Concentration in Sonography 2</b>	<b>U</b>	<b>3</b>
Provides content information about the use of sonography to image anatomy and pathology associated with the abdominal organs. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3471</b>	<b>Radiologic Physics</b>	<b>U</b>	<b>3</b>
Investigation of the principles of radiographic, fluoroscopic, CT equipment; radioactivity; advanced radiation production, emission spectrum, and interaction with matter. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3483</b>	<b>Dosimetry Calculation</b>	<b>U</b>	<b>3</b>
Principles of dosimetric calculations, terms and calculation variables are emphasized according to specific beam energies. Common dosimetry problems occurring during patient treatments are discussed. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3486</b>	<b>Diagnostic Medical Sonography Physics 1</b>	<b>U</b>	<b>3</b>
A practical application of the physics of ultrasound production. Emphasis is placed on instrumentation used in medical sonography. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3487</b>	<b>Diagnostic Medical Sonography Physics 2</b>	<b>U</b>	<b>3</b>
A continuation of Rad Sci 3486 with emphasis on the physics of ultrasound to better understand transducers and the interactions of sounds waves at every human interface. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3489</b>	<b>Diagnostic Medical Sonography Practicum I</b>	<b>U</b>	<b>1 - 8</b>
Instruction and experience in the performance and interpretation of sonographic images. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 2 completions. This course is available for EM credit.			
<b>3573</b>	<b>Applied Radiation Oncology I</b>	<b>U</b>	<b>3</b>
Introduction to neoplastic disease including incidence, mortality, epidemiology, etiology, detection, prevention, risk, stage and grading. Emphasis on radiation treatment positioning, fields, and doses of disease sites. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3574</b>	<b>Applied Radiation Oncology 2</b>	<b>U</b>	<b>3</b>
A continuation of RadSci 3573 with an emphasis on radiation treatment positioning, fields, and doses of neoplastic disease sites. Prereq: 3573.			
<b>3589</b>	<b>Diagnostic Medical Sonography Practicum II</b>	<b>U</b>	<b>1 - 8</b>
Instruction and experience in the performance and interpretation of sonographic images. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 2 completions. This course is available for EM credit.			
<b>3672</b>	<b>Radiologic Sectional Anatomy</b>	<b>U</b>	<b>3</b>
Identification of anatomic structures as seen in cadaver, CT, MR, and sonographic from multiple orientations, to include volumetric 3-D anatomical imaging. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>3689</b>	<b>Sonography Practicum III</b>	<b>U</b>	<b>1 - 10</b>
Instruction and experience in the performance and interpretation of sonographic images. Prereq: 3589, and acceptant to the Sonography program.			
<b>4089</b>	<b>Radiography Practicum III</b>	<b>U</b>	<b>1 - 10</b>
Clinical application of diagnostic radiographic and fluoroscopic imaging performed in radiology. A direct field experience will provide the student with 32 hours of clinical experience per week in imaging departments of a clinical affiliate. Prereq: 3089, and enrollment in RadSci; or permission of instructor. Repeatable to a maximum of 15 cr hrs or 2 completions. This course is available for EM credit.			

<b>4189</b>	<b>Radiography Practicum IV</b>	<b>U</b>	<b>1 - 10</b>
Clinical application of diagnostic radiographic and fluoroscopic imaging performed in radiology. A direct field experience will provide the student with 16-24 hours of clinical experience per week in imaging departments of a clinical affiliate. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 2 completions. This course is available for EM credit.			
<b>4289</b>	<b>Radiography Practicum V</b>	<b>U</b>	<b>1 - 10</b>
Clinical application of diagnostic radiographic and fluoroscopic imaging performed in radiology. A direct field experience will provide the student with 16-24 hours of clinical experience per week in imaging departments of a clinical affiliate. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 15 cr hrs or 2 completions. This course is available for EM credit.			
<b>4325</b>	<b>Administrative and Quality Management in Sonography</b>	<b>U</b>	<b>3</b>
This course will prepare sonography students with an intermediate understanding of how quality management is used to bring forth excellence in a sonography lab located within clinical settings. Prereq: Enrollment in RadSci, or permission of instructor.			
<b>4326</b>	<b>Management Strategies in Radiologic Sciences</b>	<b>U</b>	<b>2</b>
This course is provided to senior Radiologic Sciences and Therapy students in preparation for management in a hospital or clinical setting. The student will achieve an advanced understanding of management principles. Prereq: Enrollment in RadSci.			
<b>4389</b>	<b>Radiation Therapy Practicum III</b>	<b>U</b>	<b>1 - 10</b>
Clinical application of patient care, simulation, treatment and brachytherapy procedures performed in Radiation Therapy. Emphasis is directed toward machine function, patient set up and variation in procedures. Prereq: 3289 and 3389, and enrollment in RadSci; or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is available for EM credit.			
<b>4426</b>	<b>Radiographic Imaging II</b>	<b>U</b>	<b>3</b>
Advanced radiologic image formation, image assessment, and radiographic quality management and testing. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4432</b>	<b>General Concentration in Sonography 3</b>	<b>U</b>	<b>3</b>
Focuses on the use of medical sonography to image anatomy and pathology associated with the neck, breast, scrotum, extremities and neonatal cranial structures. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4478</b>	<b>Radiation Therapy Physics I</b>	<b>U</b>	<b>3</b>
Analysis of atomic structure, production, modes of radioactive decay and calculation of source activity. Fundamental applications of brachytherapy implants as it relates to specific source handling, treatment techniques, and treatment planning. Prereq: Enrollment in RadSci, or permission of instructor.			
<b>4482</b>	<b>Radiation Therapy Physics II</b>	<b>U</b>	<b>3</b>
An analysis of interaction and measurement of ionizing radiation in radiation therapy. Concepts include beam quality, measurement of absorbed dose, dose distribution, scatter analysis and electron beam radiation therapy. Prereq: 3471, and enrollment in RadSci; or permission of instructor. This course is available for EM credit.			
<b>4485</b>	<b>Treatment Planning</b>	<b>U</b>	<b>2</b>
Analysis and implementation of new and established treatment methods as it relates to the treatment plans designed for optimal coverage of the tumor volumes, avoidance of critical structures and constraints of the treatment units. Prereq: 3483, and Enrollment in RadSci; or permission of instructor. This course is available for EM credit.			
<b>4488</b>	<b>Diagnostic Medical Sonography Physics 3</b>	<b>U</b>	<b>3</b>
A continuation of Rad Sci 3487 with emphasis on the physics of spectral Doppler, color Doppler, and total quality management with practical application to sonography. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4489</b>	<b>Radiation Therapy Practicum IV</b>	<b>U</b>	<b>1 - 10</b>
Clinical application of patient care, simulation, treatment, brachytherapy and treatment planning procedures performed in Radiation Therapy. Emphasis is directed toward machine function, patient set up and variation in procedures. Prereq: 3289, 3389, and 4389, and Enrollment in RadSci; or permission of instructor. Repeatable to a maximum of 10 cr hrs or 20 completions. This course is available for EM credit.			
<b>4520</b>	<b>Vascular Sonography 1</b>	<b>U</b>	<b>3</b>
An introduction to venous imaging and noninvasive testing of the upper and lower extremities and the vascular integration of transplanted organs. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			

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<b>4521</b>	<b>Vascular Sonography 2</b>	<b>U</b>	<b>3</b>
An introduction to arterial imaging and noninvasive testing of the upper and lower extremities and vascular integration of the carotid arteries, and bypass grafts. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4530</b>	<b>Quality Management in Radiologic Sciences</b>	<b>U</b>	<b>3</b>
Investigation of QM principles and techniques specific to the imaging sciences including modality specific quality control testing and national/state requirements. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4589</b>	<b>Radiation Therapy Practicum V</b>	<b>U</b>	<b>1 - 10</b>
Clinical application of patient care, simulation, treatment, and treatment planning procedures performed in Radiation Therapy. Emphasis is directed toward competence in machine function, patient set up, plan changes and variations in procedures. Prereq: 3289, 3389, 4389, and 4489, and enrollment in RadSci; or permission of instructor.			
<b>4615</b>	<b>Radiographic Clinical Correlations</b>	<b>U</b>	<b>3</b>
The fundamentals of radiographic diagnosis are explored with an emphasis on the correlations of the patient's medical history with radiographic findings. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4618</b>	<b>Clinical Radiation Oncology</b>	<b>U</b>	<b>2</b>
Pathology of neoplastic diseases of the human body emphasizing epidemiology, clinical presentation, detection and diagnosis, staging and treatment of the neoplasm relevant to radiation oncology. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4630</b>	<b>Transitions to Clinical Practice</b>	<b>U</b>	<b>2</b>
Provides the practical skills necessary to apply radiation science theory in clinical practice and prepares students for the transition to professional in the imaging science workplace. Prereq: Enrollment in RadSci, or permission of instructor.			
<b>4670</b>	<b>Radiobiology and Radiation Protection</b>	<b>U</b>	<b>2</b>
Principles of cellular biology and the reactions from types of ionizing radiation specific to radiation sciences. Emphasis is on effects from radiation exposure, radiation safety and the radiation protection standards utilized in radiation sciences. Prereq: Enrollment in RadSci, or permission of instructor. This course is available for EM credit.			
<b>4689</b>	<b>Vascular Sonography Practicum I</b>	<b>U</b>	<b>1 - 8</b>
Instruction and experience in the performance and interpretation of vascular sonographic imaging. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 2 completions. This course is available for EM credit.			
<b>4730</b>	<b>Quality Improvement in Healthcare</b>	<b>U</b>	<b>3</b>
Quality Improvement in Healthcare is the first of two courses designed to provide students with the knowledge and practical experience to effectively implement a quality improvement (QI) project. Students will develop the skills necessary to develop a QI project through both course instruction and under the guidance of a student-identified preceptor. Prereq: 4530, or permission of instructor.			
<b>4789</b>	<b>Vascular Sonography Practicum II</b>	<b>U</b>	<b>1 - 8</b>
Instruction and experience in the performance and interpretation of vascular sonographic imaging. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 2 completions. This course is available for EM credit.			
<b>5089</b>	<b>Computed Tomography Practicum</b>	<b>U G</b>	<b>1 - 4</b>
Advanced operation, and application of CT technology, to include quality management, sectional anatomy, and supervised clinical practicum. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions. This course is available for EM credit.			
<b>5189</b>	<b>Magnetic Resonance Practicum</b>	<b>U G</b>	<b>1 - 4</b>
Theory and clinical education in magnetic resonance imaging procedures. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>5289</b>	<b>Mammography/Breast Imaging Practicum</b>	<b>U G</b>	<b>1 - 4</b>
An introduction to scientific writing within the Radiologic Sciences and the review of practice guidelines that inform best clinical practices for imaging and treatment. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>5389</b>	<b>Administration and Quality Management Practicum</b>	<b>U G</b>	<b>1 - 4</b>
A supervised practicum in radiologic sciences administration and quality management. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions.			

<b>5589</b>	<b>Vascular Interventional Radiography Practicum</b>	<b>U G</b>	<b>1 - 4</b>
Theory and clinical education in radiographic and therapeutic interventional procedures related to vascular structures and organ systems. Prereq: Enrollment in RadSci, or permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions.			

### Radiology

<b>7193.10</b>	<b>Individual Studies in Radiobiology</b>	<b>G</b>	<b>1 - 6</b>
Individual research study in Radiobiology. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 18 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Radiology</b>	<b>G</b>	<b>1 - 12</b>
Research for dissertation. Repeatable to a maximum of 12 cr hrs or 15 completions. This course is graded S/U.			

### Religious Studies

<b>2102.01</b>	<b>Literature and Religion</b>	<b>U</b>	<b>3</b>
Study of relationships between religion and secular literature; analysis of religious and spiritual elements of literature and film of diverse cultures and historical periods. Prereq: English 1110 (110) or equiv. Not open to students with credit for 2102.01H, CompStd 2102.01 (202.01), or 2102.01H (202.01H). GE lit and diversity global studies course.			
<b>2102.02</b>	<b>Comparative Sacred Texts</b>	<b>U</b>	<b>3</b>
Introduction to religious views of the universe, the supernatural, social organization, ethics, etc., through sacred texts (oral and written) of diverse cultures and historical periods. Prereq: English 1110 (110), or equiv. Not open to students with credit CompStd 2102.02 (202.02). GE lit and diversity global studies course.			
<b>2222</b>	<b>From Ishtar to Christ: The History of Mediterranean Religions</b>	<b>U</b>	<b>3</b>
This course introduces students to the historical facts of 10 ancient Mediterranean religions in a context that trains them to study religions more generally. It also teaches them how two of the most prominent religions today--Judaism and Christianity--succeeded within a richly diverse religious marketplace, and how religions respond to their political, economic, and social environments. Prereq: Not open to students with credit for Clas 2222. GE historical study course. Cross-listed in Clas.			
<b>2370</b>	<b>Introduction to Comparative Religion</b>	<b>U</b>	<b>3</b>
Introduction to the academic study of religion through comparison among major traditions (Judaism, Christianity, Islam, Hinduism, Buddhism, etc.) and smaller communities. Prereq: English 1110 (110) or equiv. Not open to students with credit for 2370H or CompStd 2370H (270H) or 2370 (270). GE cultures and ideas and diversity global studies course.			
<b>2370H</b>	<b>Introduction to Comparative Religion</b>	<b>U</b>	<b>3</b>
Introduction to the academic study of religion through comparison among major traditions (Judaism, Christianity, Islam, Hinduism, Buddhism, etc.) and smaller communities. Prereq: Honors standing, and English 1110 (110) or equiv. Not open to students with credit for 2370, CompStd 2370 (270), or 2370H (270H). GE cultures and ideas and diversity global studies course.			
<b>2670</b>	<b>Science and Religion</b>	<b>U</b>	<b>3</b>
A philosophical examination of the relationship between science and religion; concentration on issues regarding the creation of the universe and the origins of life. Prereq: Not open to students with credit for CompStd 2670 or Philos 2670 or 2860. GE cultures and ideas course. Cross-listed in Philos.			
<b>2677</b>	<b>Religion and Environmentalism</b>	<b>U</b>	<b>3</b>
Examines the complex intersections between religion and environmental movements in North America, beginning with early contact between Europeans and Native Americans. Prereq: English 1110 (110) or equiv. Not open to students with credit for CompStd 2677 (277).			
<b>3210</b>	<b>Kabbalah and the Jewish Mystical Tradition</b>	<b>U</b>	<b>3</b>
The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience. Prereq: English 1110 or equiv. Not open to students with credit for 2210, 2210H, 3210H, CompStd 2210, 2210H, Hebrew 2210, 3210, 2210H, 3210H, JewshSt 2210, 3210, 2210H, or 3210H. GE cultures and ideas and diversity global studies course. Cross-listed in Hebrew and JewshSt.			
<b>3666</b>	<b>Magic in the Modern World</b>	<b>U</b>	<b>3</b>
This course traces the modern revival of magic and neo-paganism, both in new religious movements and in popular culture, novels, music and film, from 1870 to the present. The course examines the intersections between emergent magical groups and various social and political movements. GE cultures and ideas and diversity global studies course.			
<b>3671</b>	<b>Religions of India</b>	<b>U</b>	<b>3</b>
History and structure of South Asian religions with attention to myth, ritual, art, philosophy, and social stratification. 2370 (270) recommended. Prereq: English 1110 (110) or equiv. Not open to students with credit for CompStd 3671 (321) or RelStd 321.			

<b>3672</b>	<b>Native American Religions</b>	<b>U</b>	<b>3</b>
Comparative survey of indigenous religions of North America; patterns and diversity in religious experience, cosmologies, myths, rituals, social organizations, and sacred roles. 2370 (270) recommended. Prereq: English 1110 (110) or equiv. Not open to students with credit for CompStd 3672 (322) or RelStds 322. GE cultures and ideas course and diversity soc div in the US course.			
<b>3673</b>	<b>The Buddhist Tradition</b>	<b>U</b>	<b>3</b>
History and structure of Buddhism from founding to present in South, Southeast, and East Asia; emphasis on rituals, beliefs, and local and regional variations. 2370 (270) recommended. Prereq: Not open to students with credit for CompStd 3673 (323), EALL 3223 (323), or RelStds 323. Cross-listed in EALL 3223.			
<b>3674</b>	<b>African Religions</b>	<b>U</b>	<b>3</b>
Survey of African traditional religions and their interaction with Islam and Christianity in Africa and the diaspora; emphasis on cosmologies, myth, ritual, ethics, and witchcraft. Comparative Studies 2370 (270) or 2370H (270H) recommended. Prereq: English 1110 (110) or equiv. Not open to students with credit for CompStd (324) or RelStds 324.			
<b>3678</b>	<b>Religion and American Culture</b>	<b>U</b>	<b>3</b>
Thematic approach to the intersections of religion and American culture, with attention to varied topics such as pluralism, nationalism, race, gender, sexuality, law, media, science, economics, and popular culture. 2370 (270) recommended. Prereq: English 1110 (110) or equiv. Not open to students with credit for CompStd 3678. GE diversity soc div in the US course.			
<b>3679</b>	<b>Popular Culture and World Religion</b>	<b>U</b>	<b>3</b>
The representation of religion in visual culture, in the United States and around the world; the ways that religious traditions are represented or misrepresented; the ways religious traditions appropriate popular culture for their own purposes; new forms of religious practice and community that grow directly out of popular culture. Prereq: English 1110. GE VPA course.			
<b>3680</b>	<b>Religion and Law in Comparative Perspective</b>	<b>U</b>	<b>3</b>
Comparative, interdisciplinary approach to studying religion and law. Drawing on concrete cases, historical studies, and theoretical literature, the course explores how the relationship between religion and law has been configured differently in different liberal democracies, such as the U.S., France, and Israel, and what this might mean for contemporary debates. Team-taught w/ faculty in History. Prereq: Not open to students with credit for History 3680. GE historical study and diversity global studies course. Cross-listed in History.			
<b>3872H</b>	<b>Varieties of Christianity</b>	<b>U</b>	<b>3</b>
Explores various expressions of Christianity, historically and cross-culturally. Readings are from different disciplines, including anthropology, archeology, religious studies, sociology. Prereq: Honors standing. Not open to students with credit for 4872H (524H).			
<b>3972</b>	<b>Theory and Method in the Study of Religion</b>	<b>U</b>	<b>3</b>
Survey of contemporary theories and methods used in the academic study of religion. Prereq: 2370 (270) or 2370H (270H) or equiv. Not open to students with credit for RelStds 4972 or CompStd 4972 (520).			
<b>4873</b>	<b>Contemporary Religious Movements in Global Context</b>	<b>U</b>	<b>3</b>
Examination of contemporary religious movements within the context of larger political, cultural, and economic processes, including post-colonialism, modernization, and globalization. Prereq: One course in CompStd, RelStds, or IntStds; or Grad standing; or permission of instructor. Not open to students with credit for CompStd 4873 (525) or IntStds 4873 (525). Cross-listed in IntStds.			
<b>4875</b>	<b>Gender, Sexuality, and Religion</b>	<b>U</b>	<b>3</b>
Explores intersections of gender, sexuality and religion in comparative and cross-cultural contexts. Prereq: English 1110 (110) or equiv. Not open to students with credit for CompStd 4875 (515).			
<b>5871</b>	<b>The Japanese Religious Tradition</b>	<b>U G</b>	<b>3</b>
A survey of the Japanese tradition, including Shinto, Buddhism, Taoism, New-Confucianism, and folk religion from the 6th century B.C.E. to the present. Prereq: Not open to students with credit for CompStd 5871 (641) or Japanse 5271 (641). Cross-listed in Japanse 5271.			

## Renewable Energy

<b>2025T</b>	<b>Solar Energy Systems</b>	<b>U</b>	<b>3</b>
This course encompasses solar energy systems including the underlying principles and concepts, system components, common system configurations, siting, design, environmental considerations, economic analysis and grid integration. Prereq: 2010T. This course is available for EM credit.			

## Respiratory Therapy

<b>4320</b>	<b>Components of Respiratory Health and Disease</b>	<b>U</b>	<b>4</b>
A study of normal respiratory mechanisms, manifestations and treatment of respiratory diseases, their clinical courses with specific consideration for the basis of respiratory therapeutics. Prereq: Admission to RespThr.			

<b>4400</b>	<b>Basic Respiratory Care</b>	<b>U</b>	<b>5</b>
Study and clinical application of theories, procedures, and equipment utilized in delivering, monitoring, and evaluating basic respiratory therapeutics to patients in the hospital setting. Prereq: Admission to RespThr.			
<b>4410</b>	<b>Introduction to Clinical Respiratory Care</b>	<b>U</b>	<b>4</b>
An orientation to the profession, consideration of professional ethics, introduction to basic cardiopulmonary assessment and life support techniques, infection control, medical record, hospital environment, and role of the Respiratory Therapist. Prereq: Admission to RespThr.			
<b>4430</b>	<b>Evaluation of Respiratory Function</b>	<b>U</b>	<b>5</b>
Study of methods, instrumentation, standards and clinical applications of pulmonary function testing and arterial blood gas analysis with emphasis on quality assurance. Prereq: Admission to RespThr.			
<b>4475</b>	<b>Mechanical Ventilation</b>	<b>U</b>	<b>5</b>
Study of various mechanical ventilators and artificial airways, with major emphasis placed on all aspects of the management of the patient-ventilator system. Prereq: 4320, 4400, 4410, and 4430.			
<b>4489</b>	<b>Clinical Experience Phase I</b>	<b>U</b>	<b>2</b>
Clinical application of basic respiratory therapeutics, intensive respiratory care, and arterial blood gas analysis. Prereq: 4320, 4400, 4410, and 4430.			
<b>4500</b>	<b>Respiratory Therapy for Special Populations</b>	<b>U</b>	<b>5</b>
Theories, procedures, and equipment applicable to the delivery of respiratory therapy to special populations, including the neonatal, pediatric, home care, sleep, community, rehabilitation, and long-term acute care patient. Prereq: 4320, 4400, 4410, and 4430.			
<b>4515</b>	<b>Intensive Respiratory Care</b>	<b>U</b>	<b>3</b>
The etiology, manifestations, and treatment of respiratory failure including principles, techniques and equipment associated with advanced cardiopulmonary monitoring and cardiac life support. Prereq: 4320, 4400, 4410, and 4430.			
<b>4589</b>	<b>Clinical Experience Phase II</b>	<b>U</b>	<b>3 - 10</b>
Clinical application of adult, neonatal, and pediatric intensive respiratory care; home, continuing, and long-term acute respiratory care; pulmonary rehabilitation; endotracheal intubation. Prereq: 4475, 4489, 4500, and 4515.			
<b>4593</b>	<b>Individual Studies in Respiratory Therapy</b>	<b>U</b>	<b>1 - 5</b>
Guided study of topics or pursuit of individual experiences in respiratory therapy. Concur: 4689, 5525, and 5600. Repeatable to a maximum of 10 or hrs or 4 completions. This course is graded S/U.			
<b>4689</b>	<b>Introduction to Advanced Clinical Practice Phase I</b>	<b>U</b>	<b>2</b>
Clinical education and experiences in respiratory therapy competency assurance, alternate care settings, and critical care. Prereq: 4589. This course is graded S/U.			
<b>4789</b>	<b>Introduction to Advanced Clinical Practice Phase II</b>	<b>U</b>	<b>5</b>
Clinical education and experience in respiratory therapy education, administration of respiratory services, and areas of advanced professional practice. Prereq: 4689, 5525, and 5600. This course is graded S/U.			
<b>4895</b>	<b>Seminar</b>	<b>U</b>	<b>1 - 5</b>
Conferences, group discussion, and presentations of selected topics. Prereq: Admission to RespThr. Repeatable to a maximum of 10 or hrs or 4 completions. This course is graded S/U.			
<b>5520</b>	<b>Issues in Respiratory Care</b>	<b>U G</b>	<b>2</b>
An analysis of current administrative, legal, regulatory, and professional issues which influence the administration of respiratory care services and therapists. Prereq: 5525, 4689, and 5600, or permission of instructor.			
<b>5525</b>	<b>Teaching &amp; Learning Respiratory Therapy</b>	<b>U G</b>	<b>2</b>
Principles and practice of teaching and learning in respiratory therapy. Various education roles and strategies of respiratory therapists in academic, community and clinical settings. Prereq: 4589, or permission of instructor.			
<b>5600</b>	<b>Fundamentals of Respiratory Care Research</b>	<b>U G</b>	<b>2</b>
Survey of research problems, methods, and designs utilized in respiratory care, with emphasis on data collection, analysis, and presentation. Prereq: 4589, or permission of instructor. Not open to students with credit for 593, 600, and Allimed 680.			
<b>7410</b>	<b>Advanced Health Assessment</b>	<b>G</b>	<b>3</b>
Development of advanced health assessment skills. Emphasis on acquisition of pertinent assessment data across the life span for advanced nursing care of multiple specialties. Prereq: Nursing 7450, and enrollment in Master of Respiratory Therapy (MRT) program. Cross-listed in Nursing.			

## 410 Respiratory Therapy

**7700 Ethical Issues in Advanced Practice** G 2

Focus on ethical issues in advanced Respiratory Therapy practice. Ethical principles, case studies and simulated clinical scenarios in advanced respiratory care will be reviewed as students develop skills in analyzing, synthesizing and integrating ethics to support their positions.

Prereq: Enrollment in Master of Respiratory Therapy (MRT) program.

**7800 Advanced Practice in Respiratory Care** G 3

Case study approach of theories, procedures and equipment in advanced respiratory care. Integrates critical diagnostic thinking, systems and evidence-based medicine for treatment of patients with respiratory compromise.

Prereq: Enrollment in Master of Respiratory Therapy (MRT) program. Repeatable to a maximum of 9 cr hrs.

**7895 Graduate Seminar in Respiratory Therapy** G 1 - 3

Graduate seminars will focus on evidence-based practice, current developments, and professional practice issues in Respiratory Therapy. The seminars will consist of conferences, group discussions, and presentations of selected advanced topics in Respiratory Therapy.

Prereq: Admission to Master of RespThr program. Repeatable to a maximum of 15 cr hrs or 5 completions. This course is graded S/U.

**8189 Advanced Clinical Practice I** G 4

Supervised clinical education and introductory experiences in areas of advanced professional practice. Students will develop competence with patients of various diagnoses for examination, interventions, diagnosis, development of comprehensive plan of care, goal setting, documentation, consultation, delegation, and communication.

Prereq: Enrollment in Master of Respiratory Therapy (MRT) program. This course is progress graded (S/U).

**8289 Advanced Clinical Practice II** G 7

Supervised clinical education and intermediate experiences in areas of advanced professional practice. Students will continue to develop competence with patients of various diagnoses for examination, interventions, diagnosis, development of comprehensive plan of care, goal setting, documentation, consultation, delegation, and communication.

Prereq: Enrollment in Master of Respiratory Therapy (MRT) program. This course is graded S/U.

**8389 Advanced Clinical Practice III** G 7

This course provides students with clinical experiences to develop expertise and competence in areas of advanced professional practice. Students will continue to develop competence with patients of various diagnoses for examination, interventions, diagnosis, development of comprehensive plan of care, goal setting, documentation, consultation, delegation, and communication.

Prereq: Enrollment in Master of Respiratory Therapy (MRT) program. This course is graded S/U.

## Romance Linguistics

**5051 Latin and the Romance Languages** U G 3

Examines the socio-historical factors and the linguistic processes that contributed to the formation of the Romance languages and to their divergences. Course taught in English. Prereq: Equivalent of 1103 in Italian, French, Spanish, Portuguese, Romanian, or Latin; or permission of instructor. Not open to students with credit for 692, French 692, Italian 5051 (692), or Clas 5051. Cross-listed in Clas and Italian.

**8193 Individual Studies** G 1 - 3

Individual Studies.

Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is progress graded (S/U).

**8194 Group Studies** G 1 - 9

Investigation of minor problems in the various fields of Romance linguistics.

Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8999 Research in Romance Linguistics** G 1 - 9

Research for thesis purposes only.

Repeatable to a maximum of 99 cr hrs. This course is progress graded (S/U).

## Romanian

**1101 Elementary Romanian I** U 4

Introduction to Romanian; development of speaking, listening, reading, and writing skills in cultural context. Closed to native speakers of this language.

Prereq: Not open to students with credit for 101, or 2 or more years of study in this language in high school, except by permission of department. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1102 Elementary Romanian II** U 4

Continued development of speaking, listening, reading, and writing skills in cultural context. Closed to native speakers of this language.

Prereq: 1101 (101). Not open to students with credit for 102. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1103 Intermediate Romanian I** U 4

Continued development of speaking, listening, reading, and writing skills in cultural context. Closed to native speakers of this language.

Prereq: 1102 (102). Not open to students with credit for 104 or 111. This course is available for EM credit. GE for lang course.

**2104 Intermediate Romanian II** U 4

Increasing functional ability in speaking, listening, reading, and writing practice; vocabulary-building; new grammar structures; start developing higher-level language skills in Romanian.

Prereq: 1103 (111) or 104. Not open to students with credit for 407, or native speakers of this language through regular course enrollment or EM credit.

## Rural Sociology

**1500 Introduction to Rural Sociology** U 3

Principles of society, major social institutions, and social change; emphasizes social changes in rural life, rural organizations, population, and family living.

Au, Sp Sems. Prereq: Not open to students with credit for 105, Sociol 1101 (101), or 201. GE soc sci orgs and politics and diversity soc div in the US course.

**3320 Amish Society** U 3

Analysis of the historical, social, religious, economic and cultural dimensions of the Amish. Prereq: Not open to students with credit for 5520.

**3580 Social Groups in Developing Societies** U 3

Contemporary struggles and experiences of rural social groups in the "Third World" in the context of development and globalization; emphasis on grassroots initiatives and resistance movements.

Au Sem. Prereq: 3 cr hrs in RurlSoc, Sociol, or a related social science, or permission of instructor. Not open to students with credit for 378. GE soc sci indivs and groups and diversity global studies course.

**4500 Community Development in Practice** U 3

The application of an asset-based community development framework to address environmental, economic, and social issues at the community-level in the United States. Sp Sem. Prereq: ENR 3500 or permission of instructor. Not open to students with credit for 542.

**5500 Diffusion of Innovations** U G 3

Examine the sociological processes involved in disseminating new ideas and technologies in U.S. and developing nations. Assess the consequences of new technologies for communities, households, and individuals particularly in rural contexts.

Au Sem. Prereq: Not open to students with credit for 562 or 662.

**5530 Sociology of Agriculture and Food Systems** U G 3

Overview of sociological theory and research related to agricultural change and food system development, focusing on individual, family, farm, community and environmental impacts.

Au Sem. Prereq: 6 units in RurlSoc, Sociol, or related Social Sciences, or Grad standing, or permission of instructor. Not open to students with credit for 733.

**5540 Population, Place and Environment** U G 3

Focuses on demographic issues in rural settings and related environmental issues, with an emphasis on population change and migration in the context of conflicts, disaster, and resource based development.

Prereq: 6-9 cr hrs taken in RurlSoc, Sociol, or related social science, or Grad standing. Not open to students with credit for 744.

**5580 Social Impact Assessment** U G 3

This course provides students with a broad understanding of the fundamental history, concepts, methods, and theories of Social Impact Assessment (SIA) as part of environmental policy and regulation in both US and International contexts. Students are exposed, via scholarly articles, case studies and projects, to existing SIAs from across the US and the world and how quality SIAs are performed.

Prereq: Jr, Sr, or Grad standing, or permission of instructor.

**5797 Study at a Foreign Institution** U G 1 - 15

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

Au, Sp, Su Sems. Prereq: Permission of dept chairperson. Not open to students with credit for 697. Repeatable to a maximum of 30 cr hrs or 2 completions. This course is progress graded.

**6500 Rural Poverty** G 3

Evaluation of the factors which create and maintain poverty and inequality, with focus on the rural U.S., developing nations, and the comparative analysis of spatial inequalities.

\* Sp Sem (odd years). Prereq: 15 cr hrs in RurlSoc or related social sciences, or Grad standing. Not open to students with credit for 666.

**7550 Rural Community Development in Theory and Practice** G 3

Theoretical foundations of rural community development; contemporary community development issues; change processes, strategies, and practices.

\* Sp Sem. (odd years). Prereq: Grad standing. Not open to students with credit for 888.

**7560 Environmental Sociology** G 3

Sociological approaches to the study of environmental policy. Analysis of major issues relating to the use and abuse of natural resources and pollution.

Prereq: Grad standing. Not open to students with credit for 766.

**7600 Concepts and Theories in Rural Sociology G 3**

Examines the sociological significance of "rurality" and the conceptual perspectives applied to major substantive areas in rural sociology, such as community, environment, and agriculture.  
\* Au Sem (odd years). Prereq: Grad standing. Not open to students with credit for 742.

**8500 Development Sociology in Theory and Practice G 3**

Overview of sociological principles, theories and research in the evolution of international development and globalization practices, objectives, and policies. Contemporary issues in development and globalization.  
\* Sp Sem (even years). Prereq: Grad standing. Not open to students with credit for 892.

**Russian**

**1101.01 1st-Year Russian I (Classroom Track) U 4**

Introduction to Russian: development of skills in speaking, understanding, reading, and writing contemporary Russian in a cultural context. Not open to native speakers or to students with 2 or more years of high school study.

Prereq: Not open to students with credit for 101.01, or 5 credits of 101.51, or 4 credits of 1101.51. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1101.51 Elementary Russian I (Self-Paced) U 1 - 4**

Introduction to Russian: development of skills in speaking, understanding, reading, and writing in cultural context. Students register for 1-4 cr hrs. Progress is sequential from one cr to next. 80% is required to advance. Not open to native speakers or to students with 2 or more years of high school study.

Prereq: Not open to students with credit for 1101.01 or 101.01 or 5 credits of 101.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**1101.61 Elementary Russian I (Self-Paced/Individualized Distance Learning) U 1 - 4**

Introduction to Russian: development of skills in speaking, understanding, reading, and writing contemporary Russian in a cultural context. Not open to native speakers or to students with 2 or more years of high school study.

Prereq: Not open to students with credit for 1101.01, or 4 credits of 1101.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.

**1102.01 Elementary Russian II (Classroom Track) U 4**

Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1101.01, or 4 credit hours of 1101.51 or 1101.61. Not open to students with 4 credits of 1102.51 or 1102.61. This course is available for EM credit. GE for lang course.

**1102.51 Elementary Russian II (Self-Paced) U 1 - 4**

Continued development of speaking, listening, reading, and writing skills in cultural context. Students register for 1-4 cr hrs. Progress is sequential from one cr hr to next. 80% is required to advance. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1101.01, or 4 cr hrs of 1101.51 or 1101.61. Not open to students with credit for 1102.01, or 4 cr hrs of 1102.61. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.

**1102.61 Elementary Russian II (Self-Paced/Individualized Distance Learning) U 1 - 4**

Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1101.01, 4 cr hrs of 1101.51, or 4 cr hrs of 1101.61. Not open to students with credit for 1102.01, or 4 credits of 1102.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.

**1103.01 Intermediate Russian I (Classroom Track) U 4**

Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1102.01, or 4 cr hrs of 1102.51 or 1102.61. Not open to students with 4 cr hrs of 1103.51 or 1103.61. This course is available for EM credit. GE for lang course.

**1103.51 Intermediate Russian I (Self-Paced) U 1 - 4**

Continued development of speaking, listening, reading, and writing skills in cultural context. Students register for 1-4 cr hrs during sem. Progress is sequential from one cr hr to the next. 80% is required to advance. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1102.01, or 4 cr hrs of 1102.51 or 1102.61. Not open to students with credit for 1103.01, or 4 cr hrs of 1103.61. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit. GE for lang course.

**1103.61 Intermediate Russian I (Self-Paced/Individualized Distance Learning) U 1 - 4**

Continued development of speaking, listening, reading, and writing skills in cultural context. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1102.01, 4 cr hrs of 1102.51, or 4 cr hrs of 1102.61. Not open to students with credit for 1103.01 or 4 cr hrs of 1103.51. Repeatable to a maximum of 4 cr hrs. This course is available for EM credit. GE for lang course.

**1133 Intermediate Russian for Heritage Speakers U 4**

This course is designed for students who have a Russian background, hear and/or speak (to a different degree) Russian at home and want to learn to read and write in Russian, or to develop their speaking and literacy skills through formal Russian language study. Students must take a Russian placement exam, and test out of Russian 1101 and 1102.

Prereq: Not open to students with credit for Russian 1103.01. GE for lang course.

**2104.01 Intermediate Russian II (Classroom Track) U 4**

Increasing functional ability in speaking, listening, reading, and writing practice, vocabulary-building; new grammar structures; start developing higher-level language skills in Russian. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1103.01, or 4 cr hrs of 1103.51 or 1103.61. Not open to students with 4 cr hrs of 2104.51 or 2104.61.

**2104.51 Intermediate Russian II (Self-Paced) U 1 - 4**

Increasing ability in speaking, listening, reading, and writing; vocabulary-building; new grammar; developing higher skills. Students register for 1-4 cr hrs during sem. Progress is sequential from one cr hr to next. 80% is required to advance. Not open to native speakers of this language through regular course enrollment or EM credit.

Prereq: 1103.01, or 4 cr hrs of 1103.51 or 1103.61. Not open to students with credit for 2104.01, or 4 cr hrs of 2104.61. Repeatable to a maximum of 4 cr hrs or 4 completions.

**2104.61 Intermediate Russian II (Self-paced/Individualized Distance Learning) U 1 - 4**

Increasing functional ability in speaking, listening, reading, and writing practice, vocabulary-building; new grammar structures; start developing higher-level language skills in Russian. Prereq: 1103.01 or 4 credits of 1103.51. Not open to students with credit for 2104.01 or 4 credits of 2104.51. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is available for EM credit.

**2144 Intermediate Russian for Heritage Speakers II U 4**

This is the second course designed for students who have a Russian background, hear and/or speak (to a different degree) Russian at home and want to learn to read and write in Russian, or to develop their speaking and literacy skills through formal Russian language study.

Prereq: 1133.

**2200 Russian Language and Culture for Travel and Business U 1 - 2**

During this course students will gain a general knowledge of Russian every-day cultural etiquette, as well as Russian business culture. Students who do not have previous knowledge of the language are encouraged to register for two credit hours, which will cover both essential phrases and vocabulary to travel in Russia and day-to-day cultural and business matters.

**2250.01 Masterpieces of Russian Literature U 3**

Reading and analysis of great works of Russian literature from the 19th century to the present by authors such as Pushkin, Turgenev, Dostoevsky, Tolstoy, Chekhov, Akhmatova, Bulgakov, Solzhenitsyn, and Ulitskaya. Taught in English.

Prereq: Not open to students with credit for 2250, 2250.99, or 2250H. GE lit and diversity global studies course.

**2250.99 Masterpieces of Russian Literature (Online) U 3**

Reading and analysis of great works of Russian literature from the 19th century to the present by authors such as Pushkin, Turgenev, Dostoevsky, Tolstoy, Chekhov, Akhmatova, Bulgakov, Solzhenitsyn, and Ulitskaya. Taught in English.

Prereq: Not open to students with credit for 2250, 2250.01, or 2250H. GE lit and diversity global studies course.

**2250H Honors Masterpieces of Russian Literature U 3**

Reading great works of Russian literature (including Pushkin, Turgenev, Dostoevsky, Tolstoy, Chekhov, Bunin, Akhmatova, Solzhenitsyn, Ulitskaya); developing analytical writing & discussion skills. Taught in English.

Prereq: Honors standing, or permission of instructor. Not open to students with credit for 2250 (250 and 251), 250H, or 251H. GE lit and diversity global studies course.

**2335.01 Magnificence, Mayhem, and Mafia: Russian Culture U 3**

Russian culture from its foundations to the 21st century through analysis of literature, film, music, visual arts, beliefs, and customs. Taught in English.

Prereq: Not open to students with credit for 2335, 2335.99, 135, or 235. GE cultures and ideas and diversity global studies course.

**2335.99 Magnificence, Mayhem, and Mafia: Russian Culture U 3**

Russian culture from its foundations to the 21st century through analysis of literature, film, music, visual arts, beliefs, and customs. Taught in English. Offered 100% on-line.

Prereq: Not open to students with credit for 2335, 2335.01, 135, or 235. GE cultures and ideas & diversity global studies course.

**2345 Russian Fairy Tales and Folklore U 3**

Examines four categories of texts, both verbal and visual: (1) a survey of Russian demonology; (2) a large selection of the best-known Russian fairy tales.; (3) scholarly articles analyzing the differences between folklore and literature; and (4) visual materials (film, paintings, graphics, and handicrafts) and music inspired by Russian fairy tales. Taught in English.

GE cultures and ideas and diversity global studies course.

**2355.99 Russians and their Vodka: Deconstructing Myths U 1**

Interdisciplinary study of vodka and its role in Russian history, culture, and politics. Course focuses first on vodka production and its uses, then on its influence on Russian culture in present times and key historical periods. Readings alternate with film, documentaries, and advertisements as class material. Offered totally online.

## 412 Russian

### 3101 Third-Year Russian I: Contemporary Russian in Cultural and Literary Contexts U 4

Further develop speaking, listening, reading, and writing skills and grammar competence while discussing topics of contemporary Russian life and literature.  
Prereq: 2104.01, or 4 cr hrs of 2104.51 or 2104.61.

### 3102 Third-Year Russian II: Current Events through the Russian Media U 4

Introduction to the Russian mass media with an emphasis on current events; further development of speaking, listening, reading, and writing skills and grammar competence.  
Prereq: 3101 (501 and 502), or permission of instructor. Not open to students with credit for 503 or 562.

### 3121 Advanced Reading Russian I Self-Paced U 1 - 3

Developing reading skills and strategies from a variety of authentic Russian sources, with special emphasis on contemporary materials.  
Prereq: 2104.01, or 4 cr hrs of 2104.51 or 2104.61. Repeatable to a maximum of 3 cr hrs.

### 3122 Advanced Reading Russian II Self-Paced U 1 - 3

Further development of reading skills & strategies from authentic Russian sources, with emphasis on contemporary materials. Students register for 1-4 cr hrs during sem. Progress is sequential from one cr hr to next; 80% is required to advance.  
Prereq: 3121 (581.51), or permission of instructor. Not open to students with credit for 582.51. Repeatable to a maximum of 3 cr hrs.

### 3140 Russian Conversation U 1

Maintaining and further developing conversational skills in Russian at the intermediate level. Taught in Russian as round-table discussion.  
Prereq: 2104.01 (402.01) or 2104.51 (402.51), or permission of instructor. Repeatable to a maximum of 2 cr hrs.

### 3350 Russian Culture and Politics U 3

Interdisciplinary approach to reading and perceiving Russian political culture today. The class expands the meaning of culture to include political discourse, political practices, and current societal debates. Taught in English.  
Prereq: Not open to students with credit for 550.

### 3355.99 Vodka in Russian Society and Culture: Deconstructing Myths U 3

Vodka in Russia is important to virtually all social functions, is used as a home remedy for ailments, and is a frequent theme of jokes, folk songs, films, and literature. It also has an important political history, having long been used by the Russian (and Soviet) state as a form of social control. This course explores Russian culture and history through its most famous drink.  
GE cultures and ideas and diversity global studies course.

### 3460.01 Modern Russian Experience through Film U 3

Exploration of some of the most revealing hopes and disappointments of Russian people presented in internationally acclaimed Russian films. Taught in English.  
Prereq: Not open to students with credit for 3460 or 3460.99. GE VPA and diversity global studies course.

### 3460.99 Modern Russian Experience through Film U 3

Exploration of some of the most revealing hopes and disappointments of Russian people presented in internationally acclaimed Russian films. Taught in English. 100% online.  
Prereq: Not open to students with credit for 3460 or 3460.01. GE VPA and diversity global studies course.

### 3470.01 Anna Karenina Goes to Hollywood: Tolstoy's Novel in Film and Popular Culture U 3

This course explores Tolstoy's Anna Karenina in relation to popular American culture. The course will consist of two parts: in the first half, we will read and discuss Anna Karenina, and we will then examine films and other popular works based on the novel.  
Prereq: Not open to students with credit for 3470 or 3470.99. GE VPA and diversity global studies course.

### 3470.99 Anna Karenina Goes to Hollywood: Tolstoy's Novel in Film and Popular Culture (Online) U 3

This course explores Tolstoy's Anna Karenina in relation to popular American culture. The course will consist of two parts: in the first half, we will read and discuss Anna Karenina, and we will then examine films and other popular works based on the novel.  
Prereq: Not open to students with credit for 3470 or 3470.01. GE VPA and diversity global studies course.

### 3480.01 The Russian Spy: Cultures of Surveillance, Secret Agents, & Hacking from the Cold War through Today U 3

This course explores the concept of the spy in the cultural imaginations of both Russia and the West from the early-20th century through the present. Topics will include stereotyping in popular culture, the relationship between fiction and the political imagination, Western (especially American) and Russian views of each other, the Cold War, privacy, security, fear, and war.  
Prereq: Not open to students with credit for 3480 or 3480.99. GE VPA and diversity global studies course.

### 3480.99 The Russian Spy: Cultures of Surveillance, Secret Agents, & Hacking from the Cold War through Today U 3

This course explores the concept of the spy in the cultural imaginations of both Russia and the West from the early-20th century through the present. Topics will include stereotyping in popular culture, the relationship between fiction and the political imagination, Western (especially American) and Russian views of each other, the Cold War, privacy, security, fear, and war. 100% Online.  
Prereq: Not open to students with credit for 3480 or 3480.01. GE VPA and diversity global studies course.

### 3490.01 Russian Youth Culture U 3

In this class, students will learn about different decades, from 1950s till present, in the life of Russian youth. Ideology, political activism and political inertia, Western influence and national patriotism, fashion and popular bands.  
Prereq: Not open to students with credit for 3490 or 3490.99. GE cultures and ideas and diversity global studies course.

### 3490.99 Russian Youth Culture U 3

In this class, students will learn about different decades, from 1950s till present, in the life of Russian youth. Ideology, political activism and political inertia, Western influence and national patriotism, fashion and popular bands.  
Prereq: Not open to students with credit for 3490 or 3490.01. GE cultures and ideas and diversity global studies course.

### 3530 Russian Cuisine in History, Literature and Culture U 3

Explores Russian cuisine: its history and its role in Russian literature and culture. We will use a variety of cookbooks and cultural histories as our textbooks, and we will read selections from classical Russian literature to see how writers incorporate ideas of food and cuisine into their works. We will also read critical articles about the relationship between food and culture.  
GE cultures and ideas course.

### 3570 CLLC Radio U 3

Student partners prepare 3 target language broadcasts, each 1 hour in length. Broadcasts stream live over the Internet, then become podcast for public use. Student "DJs" conduct target language research on radio broadcast history and at least 15 thematic topics and related music that interests them. Students choose their music and content with approval and guidelines, then produce scripts.  
Prereq: Permission of instructor.

### 4101 Advanced Russian I U 3

Speaking, listening, reading and writing practice in Russian at the advanced level, with focus on Russian films from the 1930s to the present.  
Prereq: 3102 or 503, or permission of instructor. Not open to students with credit for 601.

### 4102 Advanced Russian II U 3

Continuation of Russian 4101: speaking, listening, reading, and writing practice in Russian at the advanced level, with a focus on Russian culture and national identity.  
Prereq: 4101 (601) or 609, or permission of instructor. Not open to students with credit for 610.

### 4135 Practical Russian Pronunciation U 3

Russian phonetics, including terminology, transcription, practical exercises designed to improve pronunciation, and problems of teaching pronunciation. Taught in Russian. Not open to native speakers of Russian.  
Prereq: 1102, or permission of instructor.

### 4191 Internship for Russian Majors U 1 - 3

Intensive work experience or research assistance relating to Russia or Russian, conducted under the supervision of a faculty member.  
Prereq: Enrollment in major or minor in Russian, and permission of the Undergraduate Studies Coordinator. Repeatable to a maximum of 6 cr hrs and 2 completions. This course is graded S/U.

### 4575 Capstone Course for Russian Majors U 3

Junior-senior seminar explores issues of Russian language and literature, focusing on reading in Russian and on honing Russian and English oral and writing skills. Required for Russian major. Taught in Russian and English.  
Prereq: English 2367 or equiv. Repeatable to a maximum of 9 cr hrs.

### 4798 Study Trip U 3 - 6

Short-term study abroad directed by a faculty member as a supplement to a course in Russian literature or culture. Students pay OSU fees, any fees in excess of tuition, travel & subsistence costs.  
Prereq: Permission of dept chairperson and Office of International Affairs. Repeatable to a maximum of 12 cr hrs or 2 completions. This course is graded S/U.

### 5101 Adv Russian III U G 3

Continuation of Russian 4102. Development of speaking, listening, reading, & writing skills at the advanced level, with a focus on a specific theme of interest for area specialists (e.g., history, literature, culture, linguistics, health issues).  
Prereq: 4102, or permission of instructor. Not open to students with credit for 711. Repeatable to a maximum of 6 cr hrs.

### 5102 Advanced Russian IV U G 3

Continuation of Russian 5101. Development of speaking, listening, reading, & writing skills at the advanced level, with a focus on a specific theme of interest for area specialists (e.g., history, literature, culture, linguistics, health issues).  
Prereq: 5101, or permission of instructor. Repeatable to a maximum of 6 cr hrs.

<b>5103</b>	<b>Advanced Russian V</b>	<b>U G</b>	<b>3</b>
Students will continue to develop comprehensive knowledge of Russian in the following skills: speaking, reading, writing, listening, and grammar. Taught in Russian. Prereq: 5102, or permission of instructor.			
<b>5150</b>	<b>Russian for Business</b>	<b>U G</b>	<b>3</b>
This course will provide specific vocabulary and skills to deal with various areas of business and industry in Russia, including oil and natural gas, agriculture, and commerce. Prereq: 4102, or permission of instructor.			
<b>5160</b>	<b>Russian for Open-Source Media Research: Reading &amp; Listening Comprehension, Analysis, and Translation</b>	<b>U G</b>	<b>1</b>
Reading and listening comprehension are essential skills for students of Russian who plan to work as translators, language analysts, or other industry-specific specialists. This class will also provide those who have a general interest in Russian culture a survey of topics dealing with current events, politics, and international relations, and will engage exclusively with authentic texts. Prereq: 3101 or 3121, or permission of instructor. Repeatable to a maximum of 4 cr hrs.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 9</b>
Individual study on topic relating to Russian culture, literature, or language under the supervision of a faculty member. Prereq: Permission of department chairperson. Repeatable to a maximum of 18 cr hrs or 6 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group Studies in Slavic and East European languages and cultures. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>5225</b>	<b>Russian Emigre Literature</b>	<b>U G</b>	<b>3</b>
Analysis of the three "waves" of Russian emigration -- post-Revolutionary, post-WWII, and the so-called "third wave" in the 1970s and 80s through the poetry, fiction, and memoirs by such writers as: Ivan Bunin, Vladislav Khodasevich, Vladimir Nabokov, Nina Berberova, Sergei Dovlatov, Vasily Aksyonov, and Joseph Brodsky. Prereq: English 1110 or equiv, or any 4000-level Russian literature, culture or linguistics course.			
<b>5230</b>	<b>Utopia and Dystopia in Russian Literature</b>	<b>U G</b>	<b>3</b>
Russian writers of the past two centuries have been fascinated with both the idea of utopia and its reverse image of a dystopian society whose aim of perfection has led to the very opposite. In this course, we will explore realist, modernist, Soviet, and post-Soviet utopian and dystopian novels, stories, plays, and essays. Prereq: 2250 or another course on Russian literature or culture is recommended for undergraduates.			
<b>5250.02</b>	<b>The Russian Writer - Dostoevsky</b>	<b>U G</b>	<b>3 - 4</b>
Close Analysis of the major works of Fyodor Dostoevsky.			
<b>5250.03</b>	<b>The Russian Writer: Chekhov</b>	<b>U G</b>	<b>4</b>
This course will cover the work of Anton Chekhov, from early satirical stories through his major stories and plays, and will make forays into other genres, particularly letters. Students will read the texts closely, considering their social, political, philosophical, and aesthetic contexts. Prereq: Not open to students with credit for 5250 (Au15, Brintlinger).			
<b>5250.04</b>	<b>The Russian Writer: Nabokov</b>	<b>U G</b>	<b>3</b>
This course will cover several of Vladimir Nabokov's major works in their cultural, biographical, philosophical, and aesthetic context. Some students will be more familiar with the Russian literary tradition on which Nabokov richly draws, and others will be less familiar. Either is completely fine, as sufficient context will be provided in class and in optional background readings.			
<b>5460</b>	<b>Russian Media</b>	<b>U G</b>	<b>3 - 4</b>
This course will examine Russian media and communication within the context of media analysis and communication studies. The course will briefly review the history of Soviet and post-Soviet media in the late 20th-21st centuries, but will focus primarily on contemporary Russian media.			
<b>5530.02</b>	<b>Madness and Power in Russia</b>	<b>U G</b>	<b>3</b>
This English-language version of Russian 5530.01 facilitates study and research of the important trope of madness in Russian culture for advanced undergraduates and graduate students. Primary readings, discussion and coursework will be offered in English, although parallel and additional readings in Russian will be available for students with advanced language skills. Prereq: Not open to students with credit for 5530.01.			
<b>5601</b>	<b>Structure of Russian I</b>	<b>U G</b>	<b>3</b>
Systematic synchronic description of the structure of Contemporary Standard Russian, focusing on phonetics, phonology, and morphology, and associated theoretical issues. Taught in English. Prereq: 3102, or Grad standing in Slavic; or permission of instructor. Not open to students with credit for 6601 (640).			
<b>5630</b>	<b>Russian Translation: Theory, Practice, and the Profession</b>	<b>U G</b>	<b>3</b>
Theory and practice of translating Russian literary, cultural, political, scientific, and business texts into English. Recommended prereq: 2250. Prereq: 3102 or 3122.			

<b>5701</b>	<b>History of Russian I</b>	<b>U G</b>	<b>3</b>
Survey of the most important developments in the Russian writing system, phonology, morphology, and syntax from Old East Slavic to modern times; Russian among the Slavic languages; main methodologies in historical linguistics. Prereq: 3102 or 503, or Grad standing, or permission of instructor. Not open to students with credit for 720 or 6701.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
Opportunity to study at Russian educational institution and receive OSU credit. Students pay OSU fees, any fees in excess of tuition, travel & subsistence costs. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 9 completions.			
<b>6171</b>	<b>Basic Reading Russian for Graduate Students</b>	<b>G</b>	<b>3</b>
Russian alphabet, basic vocabulary, and basic elements of grammar for graduate students who need to develop reading skills for professional research. Taught in self-paced format. Continued by Russian 6172. Prereq: Grad standing. Not open to students with credit for 571.			
<b>6172</b>	<b>Reading Russian for Research</b>	<b>G</b>	<b>3</b>
Continuation of Russian 6171: further development of reading skills, vocabulary, and grammar for graduate students who need to read Russian for professional research. Taught in self-paced format. Prereq: 6171 (571), and Grad standing. Not open to students with credit for 572 or 573.			
<b>6252</b>	<b>Issues in 19th-Century Russian Literature</b>	<b>G</b>	<b>3</b>
Literature of the Golden Age and Realist periods in cultural and political context. Good reading ability in Russian recommended. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 750 or 751. Repeatable to a maximum of 6 cr hrs.			
<b>6253</b>	<b>Issues in 20th- and 21st-Century Russian Literature</b>	<b>G</b>	<b>3</b>
Silver Age, Soviet, emigre, or post-Soviet literature in cultural and political context. Good reading ability in Russian recommended. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 752 or 754. Repeatable to a maximum of 6 cr hrs.			
<b>6254</b>	<b>Russian Literary Genres</b>	<b>G</b>	<b>3</b>
Genres of Russian literature: e.g., poetry, drama, novel, short story, literary essay. Time periods, authors, and themes are variable. Good ability to read Russian recommended. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 653, 723, or 851. Repeatable to a maximum of 6 cr hrs.			
<b>7150</b>	<b>Language Maintenance and Professionalization</b>	<b>G</b>	<b>1 - 2</b>
Opportunity for graduate students to maintain/enhance their Russian language abilities and improve their lesson planning and teaching skills in Russian language classes. Prereq: Grad standing. Repeatable to a maximum of 16 cr hrs or 8 completions. This course is graded S/U.			
<b>8150</b>	<b>Graduate Student Teaching Apprenticeship</b>	<b>G</b>	<b>1</b>
Graduate students will work with a faculty member who is teaching an undergraduate, non-language course. Students will work with the faculty member to develop skills in creating lesson plans and reading lists, stimulating productive class discussions, assigning appropriate workloads, and grading. Prereq: Grad standing. Repeatable to a maximum of 4 cr hrs.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Individual studies under faculty supervision in Russian literature, film, culture, or linguistics. Prereq: Grad standing, and permission of the dept chairperson. Repeatable to a maximum of 24 cr hrs or 8 completions. This course is graded S/U.			
<b>8550</b>	<b>Seminar in Russian Literature, Film, or Cultural Studies</b>	<b>G</b>	<b>3</b>
Variable-topic seminar on issues in Russian literature, film, or culture. Repeatable for credit with change of topic. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 24 cr hrs.			

## Sanskrit

<b>5902</b>	<b>Elementary Sanskrit</b>	<b>U G</b>	<b>3</b>
Introduction to Indo-European, Indic, and Sanskrit; reading of introductory texts. Prereq: Not open to students with credit for Sanskrit 621.			
<b>5903</b>	<b>Intermediate Sanskrit</b>	<b>U G</b>	<b>1 - 3</b>
Reading of classical Sanskrit texts. Prereq: 5902 (621).			
<b>5905</b>	<b>Sanskrit Reading Group</b>	<b>U G</b>	<b>1 - 3</b>
Presents opportunities for further reading of Classical or Vedic Sanskrit texts to allow students to maintain and enhance their command of Sanskrit. Prereq: 5902, or permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			

## Scandinavian

## 414 Scandinavian

<b>2310</b>	<b>Nature in Nordic and German Literatures</b>	<b>U</b>	<b>3</b>
This course explores how literature and culture are deeply intertwined with our relationship toward nature. The focus of this exploration is the literature, culture, and history of Nordic and German-speaking countries, from the medieval period to the present. Taught in English. Prereq: Not open to students with credit for German 2310. GE lit course. Cross-listed in German.			
<b>3350</b>	<b>Norse Mythology and Medieval Culture.</b>	<b>U</b>	<b>3</b>
The myths of the Old Norse gods and the worldview and beliefs of pagan Scandinavia. Prereq: Not open to students with credit for Scandnav 222. GE lit and diversity global studies course.			
<b>4150</b>	<b>Reading the Scandinavian Languages</b>	<b>U</b>	<b>3</b>
Fundamentals of grammar of the Scandinavian languages for research purposes in the humanities, sciences, and social and behavioral sciences. Prereq: Not open to students with credit for 571.			
<b>4250</b>	<b>Masterpieces of Scandinavian Literature</b>	<b>U</b>	<b>3</b>
Selected masterpieces of Scandinavian literature from contemporary theoretical perspectives. Prereq: Not open to students with credit for Scandnav 500. GE lit course.			
<b>5150</b>	<b>Old Norse</b>	<b>U G</b>	<b>3</b>
Introduction to the grammar of Old Norse-Icelandic literature. Brief overview of Old Norse Literature and the context of its production. Prereq: Not open to students with credit for Scandnav 710.			
<b>5151</b>	<b>Variable Topics in Scandinavian Studies</b>	<b>U G</b>	<b>3</b>
Investigation of various given topics in Scandinavian studies. Prereq: Permission of instructor (for undergraduates). Repeatable to a maximum of 12 cr hrs.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>2 - 5</b>
Individual investigation of minor problems of Scandinavian languages or literatures. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 3 completions. This course is graded S/U.			
<b>5251</b>	<b>The Icelandic Saga</b>	<b>U G</b>	<b>3</b>
Introduction to the Icelandic saga, the greatest vernacular prose literature of medieval Europe. Taught in English. Prereq: Not open to students with credit for 513. GE lit course.			

### Scholars, University

<b>1100</b>	<b>Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholars status.			
<b>1100.01</b>	<b>Advocates for Communities and Education Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.02</b>	<b>Architecture, Landscape, and City Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.03</b>	<b>Biological Sciences Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.04</b>	<b>Health Sciences Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.05</b>	<b>Innovation, Creativity, and Entrepreneurship Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			

<b>1100.06</b>	<b>International Affairs Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.07</b>	<b>Media, Marketing, and Communications Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.08</b>	<b>Mount Leadership Society Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.09</b>	<b>Politics, Society, and Law Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>1100.10</b>	<b>STEM Exploration and Engagement Scholars Seminar</b>	<b>U</b>	<b>½ - 2</b>
Scholars Program academic and co-curricular requirements and expectations; University procedures relative to the Scholars experience; resources and opportunities related to the Scholars program theme; students rights, responsibilities, and expectations; overview of relevant majors and careers. Prereq: Scholar status.			
<b>2294</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Special topics at an introductory level. Arr. Prereq: Scholars standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			

### Sexuality Studies

<b>2214</b>	<b>Introduction to Sexuality Studies</b>	<b>U</b>	<b>3</b>
Provides an introduction to sexuality studies through an interdisciplinary approach. To apply the knowledge learned, this course requires a fieldwork component. Prereq: Not open to students with credit for CompStd 2214 (214) or EduPAES 214. GE diversity soc div in the US course. Cross-listed in CompStd.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate research or creative project in variable topics related to Sexuality Studies. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Honors Research</b>	<b>U</b>	<b>1 - 4</b>
Undergraduate honors student research and/or creative project in variable topics. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research: Thesis</b>	<b>U</b>	<b>1 - 4</b>
A program of reading arranged for each student, with individual conferences, progress reports, and thesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Thesis Research</b>	<b>U</b>	<b>1 - 4</b>
A program of reading arranged for each student, with individual conferences, progress reports, and honors thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5191</b>	<b>Internship</b>	<b>U G</b>	<b>1 - 3</b>
Workplace experience requiring writing and/or research. A maximum of 3 credit hours can count toward the Sexuality Studies major, minor, or GIS. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Students may register for individual directed study under this number for work not typically offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group studies. Topic varies according to instructor. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			



<b>5620</b>	<b>Sexuality and Violence</b>	<b>U G</b>	<b>3</b>
Examines the relationship of sexuality and violence. Possible contexts include war, bullying, sexual assault and rape, intimate partner violence, sexual trafficking, anti-GLBT violence. Prereq: Jr standing or above, or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>Slavic Languages and Literatures</b>			
<b>2230.01</b>	<b>Vampires, Monstrosity, and Evil: From Slavic Myth to Twilight</b>	<b>U</b>	<b>3</b>
Changing approaches to evil as embodied in vampires in East European folk belief & European & American pop culture; function of vampire & monster tales in cultural context, including peasant world & West from Enlightenment to now. Taught in English. Prereq: Not open to students with credit for 2230 or 2230.99. GE cultures and ideas and diversity global studies course.			
<b>2230.99</b>	<b>Vampires, Monstrosity and Evil: From Slavic Myth to Twilight (Online)</b>	<b>U</b>	<b>3</b>
Changing approaches to evil as embodied in vampires in East European folk belief & European & American pop culture; function of vampire & monster tales in cultural context, including peasant world & West from Enlightenment to now. Taught in English. 100% Online. Prereq: Not open to students with credit for 2230 or 2230.01. GE cultures and ideas and diversity global studies course.			
<b>2345</b>	<b>Introduction to Slavic and East European Literature and Culture</b>	<b>U</b>	<b>3</b>
Literature of a selected Slavic or East European country or countries in cultural and historical context; may include film, drama, art, music, and other media. Taught in English. May be repeated with topic change. Prereq: Not open to students with credit for 245 except by permission of instructor. Repeatable to a maximum of 9 cr hrs. GE lit course, GE diversity global studies course.			
<b>2365.01</b>	<b>Sports, Socialists, and Society in Russia and Eastern Europe</b>	<b>U</b>	<b>3</b>
This course looks at the development of sports as a substitute and arena for battle between countries, as well as the rise of sports culture more generally in Central and Eastern Europe in terms of nationhood, politics, and corporeality. In this course, students will learn about the history and culture of sports, spectatorship, fandom, the Cold War, and Central and Eastern Europe. GE cultures and ideas and diversity global studies course.			
<b>2365.99</b>	<b>Sports, Socialists, and Society in Russia and Eastern Europe (Online)</b>	<b>U</b>	<b>3</b>
This course looks at the development of sports as a substitute and arena for battle between countries, as well as the rise of sports culture more generally in Central and Eastern Europe in terms of nationhood, politics, and corporeality. In this course, students will learn about the history and culture of sports, spectatorship, fandom, the Cold War, and Central and Eastern Europe. GE cultures and ideas and diversity global studies course.			
<b>2367</b>	<b>East European Immigrant Experience in America</b>	<b>U</b>	<b>3</b>
Experiences of East European immigrants; assimilation vs. multiculturalism, American Dream, stereotypes, identity formation; development of written & oral communication skills. Taught in English. Prereq: Level 1 writing course (1110), or English 110 or 111 with permission of instructor; Soph standing. Not open to students with credit for 367. GE writing and comm course: level 2, and diversity soc div in the US course.			
<b>2797.02</b>	<b>Central European Study Abroad</b>	<b>U</b>	<b>3</b>
Course for Gateway Hungary Program (May Session). Introduction to history, geography, and politics of Hungary and other Cen. Eur. countries, including Poland, Czech Republic, and Slovakia. On-site study of urban culture and development in Budapest and Warsaw; multimedia project in collaboration with Hungarian and Polish university students. No prior knowledge of Hungary or Cen. Europe required. GE diversity global studies and education abroad course.			
<b>3310</b>	<b>Science Fiction: East vs. West</b>	<b>U</b>	<b>3</b>
Slavic, American, and British sci-fi on page and screen as reflection of major cultural concerns: progress, utopia, human perfectibility, limits of science and knowledge, gender, identity. Taught in English. Prereq: Not open to students with credit for 3320 or WGSST 3310. GE VPA and diversity global studies course. Cross-listed in WGSST.			
<b>3333</b>	<b>The Soviet Space Age</b>	<b>U</b>	<b>3</b>
Exploration of Space Age as a technological/cultural phenomenon, focusing on the Soviet period and the Space Race, in historical context and in a comparative perspective. Taught in English. GE cultures and ideas and diversity global studies course.			
<b>3360</b>	<b>Screening Minorities: Representations of the Other in Slavic Film</b>	<b>U</b>	<b>3</b>
Film representations of ethnic and religious others in East European cinema. Taught in English. Prereq: Not open to students with credit for 360. GE VPA course.			

<b>3800</b>	<b>Bilingualism: Life in Two Worlds</b>	<b>U</b>	<b>3</b>
Exploration of multifaceted aspects of bilingual individuals: reasons to become bilingual, cognitive & social advantages of bilingualism, attitudes to people with accents, personality & bilingualism. No prior knowledge of linguistics is required. GE soc sci indivs and groups course.			
<b>4520H</b>	<b>Slavic and East European Cities</b>	<b>U</b>	<b>3</b>
Literary and cultural analysis of a city in East Central, Southeastern, or Eastern Europe (e.g., Sarajevo, Budapest, Prague, Krakow) as an urban space, using sources from many periods and cultures. Repeatable with change of topic. Taught in English. Prereq: Honors standing, and English 1110 or equiv, or permission of the instructor. Not open to students with credit for 520.01H, except by permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>4597</b>	<b>Politics of Language in Southeast Europe</b>	<b>U</b>	<b>3</b>
Social/political import of language in Balkans and neighboring countries; role of language in ethnic identities; manipulation of language to shape political and social structures. Taught in English. Prereq: Jr or Sr standing. GE diversity global studies and cross-disciplinary seminar course.			
<b>4798</b>	<b>Study Trip</b>	<b>U</b>	<b>1 - 6</b>
Short-term study abroad directed by a faculty member as a supplement to a course in Slavic and East European literature or culture. Students pay OSU fees, any fees in excess of tuition, travel & subsistence costs. Prereq: Permission of dept chairperson and Office of International Affairs. Repeatable to a maximum of 12 cr hrs or 2 completions. This course is graded S/U.			
<b>4998</b>	<b>Undergraduate Supervised Project</b>	<b>U</b>	<b>1 - 3</b>
Opportunity for undergraduate majors and minors to do non-thesis research or creative work (e.g., translations) under faculty supervision for credit. Prereq: Major or minor status in one of dept's programs and permission of faculty member supervising the project and Undergraduate Studies Coordinator. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Research</b>	<b>U</b>	<b>1 - 3</b>
Faculty-supervised undergraduate research on Russian, Slavic, East Central European, Southeast European, or East European language(s), literature(s), or culture(s), culminating in a thesis. Prereq: Sr standing; permission of instructor under whose supervision the work is to be completed and department Undergraduate Studies Coordinator. Not open to students with credit for 783H. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 3</b>
Faculty-supervised honors research on Russian, Slavic, East Central European, Southeast European, or East European language(s), literature(s), or culture(s), culminating in a thesis. Prereq: Sr standing; a grade of A in at least half of the Slavic department courses taken and an average of B in the remainder; permission of instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. Not open to students with credit for 783H. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 6</b>
Individual study on topic relating to Russian culture, literature, or language under the supervision of a faculty member. Prereq: Permission of dept chairperson. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 6</b>
Group Studies. Repeatable to a maximum of 24 cr hrs or 4 completions.			
<b>5450</b>	<b>Global Human Trafficking: Realities and Representations</b>	<b>U G</b>	<b>3</b>
This course will introduce students to the development of human trafficking as it has been understood and represented by governments, policymakers, the media, and popular culture. The objective of this course is to scrutinize common understandings and representations of trafficking and to consider the advantages and disadvantages of such understandings and representations. Prereq: Not open to students with credit for WGSST 5450. Cross-listed in WGSST.			
<b>5457</b>	<b>Ideology and Viewers: East European Film and Media</b>	<b>U G</b>	<b>3</b>
This course explores the complex dynamics between ideology, propaganda, and the ways Russian, East European, and U.S. films and media 'tap into the political unconscious' of viewers. With the aid of audience studies and reception theory, the course examines film and media reception and the ideological factors which impact it from the early Soviet and socialist times to the present. Repeatable to a maximum of 9 cr hrs.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
Opportunity to study at an educational institution in a Slavic-speaking country and receive OSU credit. Students pay OSU fees, any fees in excess of tuition, travel & subsistence costs. Prereq: Permission of dept chairperson. Repeatable to a maximum of 36 cr hrs or 9 completions. This course is progress graded.			

## 416 Slavic Languages and Literatures

**6000 Slavic Literature, Film, and Cultural Studies Professionalization Forum** G 1

Biweekly colloquium for presentations and discussion of research by graduate students, faculty, and visiting scholars. Required for M.A. and Ph.D. degrees in Slavic Literatures and Cultures.

Prereq: Grad standing. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

**6457 Film Theory, Gender, and National Identity in Slavic Cinema** G 3

Introduction to film theory and exploration of changes in national and gender identities during the 20th century as reflected in Slavic cinema. Taught in English.

Prereq: Grad standing, or permission of instructor and approved petition to Graduate School. Repeatable to a maximum of 9 cr hrs.

**6500 Proseminar in Slavic and East European Literary & Cultural Studies** G 3

Introduction to scholarly approaches to Slavic and East European Literary & Cultural Studies; historical overview of literary & cultural criticism & theory; basic practical approaches to the study of literary & cultural texts. Taught in English.

Prereq: Grad standing in dept, or 25 hrs of Russian and/or Slavic and East European literature, or permission of instructor. Not open to students with credit for Russian 660.

**6501 Introduction to Slavic and East European Studies** G 3

Proseminar on central topics, current research, and research methodology in the Slavic and East European area studies. Taught in English. Required for the M.A. program in the Center for Slavic and East European Studies.

Prereq: Grad standing or permission of instructor. Not open to students with credit for 700.

**6600 Slavic Linguistics Professionalization Forum** G 1

Biweekly colloquium for presentations and discussion of research by graduate students, faculty, and visiting scholars. Required for M.A. and Ph.D. degrees in Slavic Linguistics.

Prereq: Grad standing. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

**6625 Old Church Slavonic** G 3

Introduction to the grammar of Old Church Slavonic, with readings in authentic medieval Slavic texts. Taught in English. Prior knowledge of a Slavic language not required.

Prereq: Grad standing or permission of instructor. Not open to students with credit for 810 or 7625.

**6999 Masters Research in Slavic** G 3 - 6

Directed research in Slavic for fulfillment of M.A. requirements.

Prereq: Grad standing in Slavic and East European Languages and Literatures. Not open to students with credit for 999. This course is graded S/U.

**7480 Slavic Film Directors** G 3

Slavic and East European film directors as auteurs; key notions of contemporary film theory. Taught in English.

Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 6 cr hrs with change of topic.

**7801 College Teaching of Slavic & East European Languages** G 3

Methods & techniques for teaching Slavic/Eur languages at college level; selection & preparation of teaching & testing materials & other aids. Requires participation in intensive workshop prior to Au sem. Required of all teaching assistants.

Prereq: Grad standing. Not open to students with credit for Russian 801.

**7998 Doctoral Research in Slavic** G 1 - 6

Research in fulfillment of pre-candidacy requirements in Slavic Linguistics or Literature/Cultural Studies.

Prereq: Enrollment in Slavic Linguistics or Literature Ph.D program. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.

**8802 Language and Memory: Psycholinguistic Approaches to Bilingualism** G 3

Discussion of psycholinguistic works related to memory and its role in language processing, second language learning, and forgetting. Taught in English. Elective for the GIS in Second Language Studies.

Prereq: Grad standing or permission of instructor. Not open to students with credit for 804.

**8803 Language, culture, and cognition** G 3

Discussion of different methodological & theoretical approaches to the Linguistic Relativity (Sapir-Whorf) hypothesis, including data and scholarship from Russian & other Slavic languages. Taught in English.

Prereq: Grad standing, or permission of instructor.

**8999 Dissertation Research in Slavic** G 3 - 12

Research in Slavic for dissertation purposes.

Prereq: Permission of dept chairperson. Repeatable to a maximum of 36 cr hrs or 12 completions. This course is graded S/U.

**1100 Introduction to Ohio State and the College of Social Work** U 1

The purpose of the Social Work Survey Course is to facilitate an eased integration to the OSU undergraduate community, and to assist students with developing relative strategies for a successful transition and participation in the community. Course is designed to provide a preliminary orientation to the social work undergraduate program and curricula.

Prereq: Undergraduate standing in the College of Social Work.

**1120 Introduction to Social Welfare** U 3

An introduction to the history, structure, and function of the social welfare institution.

Prereq: Not open to students with credit for 220 or 520. GE soc sci human, nat, and econ resources course.

**1130 Introduction to Social Work in Contemporary Society** U 3

An introduction to the core values, fundamental goals, unique functions and methods of the social work profession.

Prereq: Not open to students with credit for 230. GE soc sci indivs and groups course.

**1130H Introduction to Social Work in a Contemporary Society** U 3

An introduction to the core values, fundamental goals, unique functions and methods of the social work profession.

Prereq: Honors standing. Not open to students with credit for 1130 (230). GE soc sci indivs and groups course.

**1140 Minority Perspectives: Race, Ethnicity, and Gender** U 3

Examination of the structure of human societies, cultures, and institutions from the perspective of oppressed minority populations.

Prereq: Not open to students with credit for 300. GE diversity soc div in the US course.

**2110 Prevention & Youth Development through Sport, Recreation, and Play** U 3

Focuses on how characteristics of environmental contexts contribute to the development of social/academic/health-related problems among youth. Knowledge and skills of generalist social work practice are applied to guide the design and delivery of prevention and youth development programs in sport/recreation/play settings. There will be sports and recreational activities, so dress accordingly.

Prereq: Not open to students with credit for 310.

**2200S Nonviolent Communication in Community Agency Settings** U 3

This Service-Learning General Education course will provide students with the fundamentals of nonviolent communication. Students will learn the principles and skills of nonviolent communication in a series of classroom sessions that include both lecture and experiential learning, and then apply classroom learning at a community agency setting. GE service learning course.

**2201 Preparation for International Service Learning** U 1

This online course prepares students for participating in international service learning experiences in the global health area. Students will learn ethical approaches to service in international settings, including asset-based approaches to development; charity and justice frameworks to service; cultural humility; ways in which biases and stereotypes interfere with effective service.

This course is graded S/U.

**3101 Professional Values and Ethics** U 3

Introduction to the NASW Code of Ethics, ethical theory, and ethical issues and dilemmas that confront professional social workers.

Prereq: Enrollment in SocWork major. Not open to students with credit for 690.

**3201 Social and Economic Justice: Strategies for Social Work** U 3

Introduces students to social and economic justice and injustice and presents multiple strategies to pursue social justice, with a particular emphasis on the role of advocacy.

Prereq: Enrollment in SocWork major. Not open to students with credit for 521.

**3301 Lifespan Development in Social Work** U 3

Explores human development across the lifespan, with an emphasis on conceptualizing individuals holistically, taking into account factors from various theories that may have relevance to each age group. Offers information about the importance of understanding lifespan development in social work, basics of lifespan development, research and the scientific method, and major theories and theorists.

**3401 Research & Statistics for Understanding Social Work Problems and Diverse Populations** U 3

This is the first course in the BSSW program sequence preparing students to effectively work with research evidence and statistics as social work professionals. Students will develop the requisite skills and knowledge for beginning to identify, assess, and apply existing bodies of evidence to answer questions about social work problems and diverse populations.

Prereq: Math 1060 or 1075 or above or Math Placement Level R or above, and admission to the Social Work major. Not open to students with credit for 3401E.

**3401H Research & Statistics for Understanding Social Work Problems and Diverse Populations: Honors** U 3

This is the first course in the BSSW program sequence preparing students to effectively work with research evidence and statistics as social work professionals. Students will develop the requisite skills and knowledge for beginning identify, assess, and apply existing bodies of evidence to answer questions about social work problems and diverse populations.

Prereq: Honors standing; and Math 1060, 1075, or Math Placement Level R; and admission to the Social Work major.

## Social Work

**3402 Research & Statistics for Understanding Social Work Interventions** U 3

This is the second course in the BSSW program sequence preparing students to effectively work with research evidence and statistics as it applies to social work interventions at multiple levels. Students will develop the requisite skills and knowledge for beginning to identify, assess, and apply research evidence to inform and evaluate social work practices at multiple levels of intervention.  
Prereq: 3401.

**3402H Research & Statistics for Understanding Social Work Interventions: Honors** U 3

This is the second course in the BSSW sequence preparing honors students to effectively work with research evidence and statistics as it applies to social work interventions at multiple levels. Students will develop the requisite skills and knowledge for beginning to identify, assess, and apply research evidence to inform and evaluate social work practices at multiple levels of intervention.  
Prereq: 3401H.

**3501 Engagement and Interviewing Skills** U 3

Addresses interviewing skills critical to social work. Didactic and experiential methods will provide a foundation for practice and facilitate entry into the field.  
Prereq: Jr or Sr standing, and enrollment in SocWork major.

**3502 Foundations of Generalist Practice** U 3

Introduces students to the theories, knowledge and skills of generalist social work practice, with an emphasis on work with individuals.  
Prereq: 3501. Not open to students with credit for 645.

**3503 Social Work Practice with Diverse Populations** U 3

Foundation knowledge and a social work perspective for working with diverse populations, especially those who are oppressed and marginalized.  
Prereq: 3501.

**3597 Adolescent Parenthood and Sexuality: An International Perspective** U 3

Examination of the biological, psychosocial and cultural forces that influence adolescent sexual behaviors. International comparisons will be emphasized with respect to teenage sexual trends and national policies and programs.  
Prereq: Jr or Sr standing. Not open to students with credit for 597. Not open to MSW students. GE cross-disciplinary seminar course.

**3600 Introduction to Psychopathology and Social Work Practice** U 3

This course will familiarize students with the major mental disorders, offer strategies for building on clients' strengths and resilience, provide basic tools for screening and referral, and impart knowledge of the mental health delivery system and its resources.  
Prereq: Jr or Sr standing in social work major, or permission of the department.

**3700 Social Work Practice with Digital Technologies** U 3

This elective BSSW course examines the complex intersections of digital technologies and social work practice through the lens of The Grand Challenges for Social Work Initiative. In this course, students develop cutting-edge competencies and practical digital skills through hands-on application of course principles in an activity-based, experiential learning 'Laboratory Approach'.  
Prereq: 3501.

**3806 Substance Use Screening, Assessment, Diagnosis, and Treatment Planning** U 3

The focus of this undergraduate elective course is to introduce and review concepts and current issues related to screening, assessment, diagnosis, and treatment planning for individuals with alcohol and other drug [AOD] use problems.  
Prereq: 3805, or permission of instructor.

**3807 Intervention and Prevention Strategies in Substance Use** U 3

Content includes review of the evidence base and techniques for contemporary and historical models of substance misuse prevention and intervention, including vulnerability, risk, resilience and protective factors. This course meets specified hours of chemical dependency educational content for Ohio's Licensed Chemical Dependency credentials.  
Prereq: 3805, or permission of instructor.

**4188.01 Undergraduate Field Seminar** U 1

Integration of knowledge and practice; problem solving and discussion of social work practice issues, values, and ethics. Taken concurrently with field practicum.  
Prereq: 3502 (645). Concur: 4189. Repeatable to a maximum of 2 or hrs.

**4188.02 Undergraduate Field Seminar** U 2

Integration of knowledge and practice; problem solving and discussion of social work practice issues, values, and ethics. Taken concurrently with field practicum.  
Prereq: 3502. Concur: 4189.

**4189 Field Practicum** U 5

Internship in a social work agency. Students integrate classroom knowledge and skills with practice experiences.  
Prereq: 3502 (645). Concur: 4188.01 or 4188.02. Repeatable to a maximum of 10 or hrs. This course is graded S/U.

**4193 Individual Studies** U 1 - 3

Individual study projects in selected areas of social work and social welfare.  
Prereq: 6 cr hrs in SocWork or related courses, and approval of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4194 Group Studies** U 1 - 3

Group study projects in selected areas of social work and social welfare.  
Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs or 3 completions.

**4501 Generalist Practice with Families** U 3

Application of professional values, knowledge, and skills essential for effective generalist social work practice with families.  
Prereq: 3502 (645). Not open to students with credit for 646.

**4502 Generalist Practice with Groups** U 3

Application of professional values, knowledge, and skills essential for effective generalist social work practice with small groups.  
Prereq: 3502 (645). Not open to students with credit for 646.

**4503 Generalist Practice with Larger Systems** U 3

Application of professional values, knowledge, and skills essential for effective generalist social work practice with organizations and communities.  
Prereq: 4502. Not open to students with credit for 647.

**4503H Generalist Practice with Larger Systems** U 3

The purpose of this course is to assist students in understanding the values, knowledge base, and skills associated with generalist practice when working with task groups, organizations, and communities.  
Prereq: Honors standing, and 4502.

**4996H Honors Research Seminar** U 3

In this seminar course, Undergraduate Honors Students consider which pathway they will pursue in their thesis: an independent research thesis, or a social impact project. Through a combination of guided group and individualized study, students develop knowledge and skills to select their desired pathway and plan their thesis project, which culminates in a proposal.  
Prereq: 3401H. Prereq or concur: 3402H.

**4998H Social Impact Project** U 5

Students will work 1:1 with a faculty mentor to plan and implement an innovative and sustainable social impact project that engages with issues of advocacy, justice, and community building. The project must reflect an informed understanding of the social issue being addressed, the communities being served, and how the project will create change.  
Prereq: Honors standing, and 3402H and 4996H. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**4999 Thesis Research** U 5

Non-honors thesis research.  
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**4999H Engaging in Knowledge Building Research - Honors Thesis Research** U 5

Through guided group and independent study, students further develop and implement their independent social work research studies.  
Prereq: Honors standing, and 4996H. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**5001 Writing for Agency Practice** U G 2

Introduction to documentation skills utilized in the delivery of social work services.  
Prereq: Jr, Sr, or Grad standing in SocWork, or permission of department.

**5002 AIDS Survey: Facts and Issues** U G 3

This course will provide a review of the physiological, global, cultural and educational issues inherent in understanding HIV disease and implications for social work practice. It will also explore the historical context of HIV and how response to the disease has evolved over the past 30 years in the United States.  
Prereq: Not open to students with credit for 695.17, 695.18, or 695.19.

**5004 International Social Work** U G 3

Examines a variety of social issues through a global perspective in order to fully appreciate the role of culturally diverse and country-specific responses to social problems.  
Prereq: Jr, Sr, or Grad standing in SocWork, or permission of department. Not open to students with credit for 695.08.

**5005 Human Trafficking: Domestic and Global Perspectives** U G 3

Examines domestic and global human trafficking from a social work perspective.  
Prereq: Jr, Sr, or Grad standing.

**5006 Sexualities, Diversity & Social Work** U G 3

Diversity of sexual identities, beliefs, behavior, and lifestyles are explored in the context of social work's mission, values, and ethics for professional practice.  
Prereq: Jr, Sr, or Grad standing. Not open to students with credit for 695.20.

## 418 Social Work

<b>5007</b>	<b>Child Welfare I</b>	<b>U G</b>	<b>3</b>
This is the first of a series of two child welfare courses designed to provide the knowledge, concepts, and tools for beginning level practice in public and private child welfare. This course focuses on interventions to protect children by strengthening, supporting, and empowering their families. Prereq: Jr standing, or above. Not open to students with credit for 695.21.			
<b>5008</b>	<b>Child Welfare II</b>	<b>U G</b>	<b>3</b>
This is the second in a series of two child welfare courses. The first course (SocWork 5007: Child Welfare I) focuses on protecting children through strengthening and supporting their families. This course (SocWork 5008: Child Welfare II) addresses the developmental and permanence needs of children in the child welfare system. Prereq or concur: 5007.			
<b>5009</b>	<b>Family Caregiving: Contemporary Issues, Programs, &amp; Policies</b>	<b>U G</b>	<b>3</b>
Course provides students from a variety of disciplines with the opportunity to develop the knowledge and skills to address the needs of individuals providing care for a chronically ill or disabled family member or friend. Programs and policies in place to support caregivers are analyzed and the contemporary challenges faced by caregivers are discussed. Prereq: Jr, Sr, or Grad standing.			
<b>5011</b>	<b>Loss &amp; Grief: A Social Work Practice Perspective</b>	<b>U G</b>	<b>2</b>
Examines the theoretical, cultural, social and personal aspects of loss and grief and introduce students to approaches and interventions with diverse populations. Prereq: Sr or Grad Standing in SocWork, or permission of department. Not open to students with credit for 714.			
<b>5012</b>	<b>Social Work Approaches to Conflict Resolution</b>	<b>U G</b>	<b>2</b>
Introduces negotiation and mediation skills from a social work perspective to resolve conflict in work with individuals, families, groups, organizations, and communities. Prereq: Jr, Sr, or Grad standing in SocWork.			
<b>5013</b>	<b>Integrative Body-Mind-Spirit</b>	<b>U G</b>	<b>2</b>
Introduces knowledge and skills regarding assessment and treatment techniques pertaining to a holistic approach of mind, body, and spirit treatment. Prereq: Jr, Sr, or Grad standing in SocWork, or permission of department.			
<b>5014</b>	<b>Juvenile Delinquency and Correctional Practice in Social Work</b>	<b>U G</b>	<b>3</b>
Provides students with knowledge about social work with juvenile and adult offenders. Theories about criminal offending and interventions with both juveniles and adults is covered. Prereq: Not open to students with credit for 503 or 695.13.			
<b>5015</b>	<b>Social Work and the Law</b>	<b>U G</b>	<b>3</b>
The purpose of this course is to teach students the legal concepts and principles that shape social welfare policy and social work practice. In addition, the course will teach students how social research is used by the legal system to decide cases and how social activism sometimes influences the legal system. Prereq: Jr, Sr, or Grad standing. Not open to students with credit for 695.23.			
<b>5016</b>	<b>Affirmative Social Work Practice with LGBTQ Individuals, Couples, and Families</b>	<b>U G</b>	<b>3</b>
With focus on practice application, this course provides a comprehensive overview of the salient psych-social issues and life-course phenomena distinctive to the LGBTQ experience and affirmative interventions. Prereq: Sr or Grad standing in Social Work, or permission of instructor. Not open to students with credit for 715.			
<b>5017</b>	<b>Social Work Practice in the Field of Intellectual/Developmental Disabilities</b>	<b>U G</b>	<b>2</b>
Social work principles related to social, cultural, physical and educational/vocational issues of IDD using a lifespan perspective. Prereq: Not open to students with credit for 695.15.			
<b>5018</b>	<b>Interdisciplinary Case Management for Working with Underserved Populations</b>	<b>U G</b>	<b>2</b>
Provides students the opportunity to collaborate with students from other health care professions including pharmacy, health and rehabilitation sciences, nursing, medicine and social work. The students will use a problem-based learning approach to patient care in community health, focusing on populations, living in poverty, with complex healthcare needs. Prereq: Sr or Grad standing. This course is graded S/U. Cross-listed in HthRhSc 5000 and Nursing 5000.			
<b>5021</b>	<b>Summer Institute of Addiction Studies</b>	<b>U G</b>	<b>1</b>
The Addiction Studies Institute provides students with state of the art information in working within the field of substance dependency/prevention. The goal is to provide the latest information in treatment planning, prevention, intervention, family work, wellness and recovery and current trends impacting service delivery systems.			
<b>5023</b>	<b>Family Violence: Social Work Perspectives and Interventions</b>	<b>U G</b>	<b>3</b>
This is a team-taught course, in collaboration with The Center for Family Safety and Healing, which introduces the fundamental knowledge and concepts for working with victims of all types of family violence. The factors that contribute to family violence and the long term consequences are emphasized. The importance of multidisciplinary teams in responding to family violence is addressed. Prereq: Jr, Sr, or Grad standing.			

<b>5024</b>	<b>Social Work Licensure Exam Strategies and Skills</b>	<b>U G</b>	<b>2</b>
Provides instruction on test taking strategies, learning content and developing a study plan to pass the Bachelor and Clinical licensure exam. Provides students with a five volume study guide and a guarantee backed by AATBS to pass the exam. All content revised to reflect the changes in the Ohio Social Worker rules and access to multiple online practice tests in study and exam modes. Prereq: Sr or Grad standing in Social Work. This course is graded S/U.			
<b>5025</b>	<b>Social Determinants of Health: An Interdisciplinary Perspective</b>	<b>U G</b>	<b>3</b>
Prepares students to practice in diverse health settings, with diverse populations, by providing knowledge regarding theories/frameworks related to social determinants of health and skills to apply them. Service provision for underserved populations within an interdisciplinary framework and the importance of social policy to service provision will be emphasized. Prereq: Sr, Grad or Professional standing.			
<b>5026</b>	<b>Exploring Community Food Security Strategies</b>	<b>U G</b>	<b>3</b>
Explores the complex interrelated social and environmental issues related to the food system. The development of the global food system and social, economic, health, and environmental consequences related to disparities in the food system will be discussed. Students will spend some class periods working at a food pantry, soup kitchen, produce distribution program and community garden. Prereq: Undergrad or Grad status in Social Work, or permission of instructor.			
<b>5028</b>	<b>Macro-Practice in Community Youth Development</b>	<b>U G</b>	<b>3</b>
Prepares students to be informed, resourceful, and proactive in addressing the complex and dynamic issues influencing youth in underserved communities. Prepares students to engage, assess, and evaluate how policy affects service delivery, and the role of macro-level social work practice in promoting positive youth development (PYD). Prereq: Jr, Sr, or Grad Standing.			
<b>5029</b>	<b>SocWork Career Development</b>	<b>U G</b>	<b>1</b>
This course will familiarize students with professional development tools and skills. Students will learn how to create a professional portfolio to interview, negotiate, network, and job search; to market their strengths, create a LinkedIn account, build their resume, negotiate during or after a job interview, and engage in workplace professionalism. Prereq: 3502 or 6501.			
<b>5030</b>	<b>Global Social Work Perspectives on Poverty and Inequality</b>	<b>U G</b>	<b>3</b>
This course examines the nature and dimensions of poverty and inequality in the U.S. and across the world, considers individual and social consequences of poverty, and examines historic and contemporary approaches to ameliorating poverty including review of major poverty and social welfare policy and programs. Focuses on helping students understand why poverty matters to social workers. Prereq: Undergrad or Grad standing in SocWork.			
<b>5031S</b>	<b>Neurodiversity: Building Cultural Competence with Developmental Disability</b>	<b>U G</b>	<b>3</b>
Service Learning in Neurodiversity: Building Cultural Competence with IDD teaches about engaging with neurodiverse individuals, particularly those with intellectual and developmental disabilities(IDD). Students will learn from the neurodiversity model, which views neurological differences like autism and ADHD as normal and natural variations in the human genome.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group study projects in selected areas of social work and social welfare. Prereq: Permission of instructor. Repeatable to a maximum of 3 or hrs.			
<b>5798.01</b>	<b>India Study Abroad Program</b>	<b>U G</b>	<b>3</b>
The course introduces undergraduate and graduate students to history, tradition, and cultural paradigms impact on the social welfare policies and practices in India, with special emphasis on socio-economic, health and mental health programs and services delivery systems.			
<b>5798.02</b>	<b>Social Issues and Human Rights in Nicaragua</b>	<b>U G</b>	<b>3</b>
The short term study abroad program in Nicaragua will expose undergraduate and graduate students to the historical and cultural context for social issues and human rights in Nicaragua, the largest and poorest country in Central America. Students will learn about the Sandanista revolution that took place in the 1970s and the current political and development environment. GE education abroad course.			
<b>5798.03</b>	<b>An Exploration of Australia's Systems of Care</b>	<b>U G</b>	<b>3</b>
Course is taught in Melbourne, Australia and focuses on two systems of care in Australia: child welfare and children's mental health. Students will learn about the country's policy, research, and practices, especially in relation to Aboriginal peoples, and about Australia's use of technology. Students will reflect on differences and similarities between the US and Australian systems.			
<b>5798.04</b>	<b>Social Issues and Human Rights in Guatemala</b>	<b>U G</b>	<b>3</b>
This education abroad program will expose students to the historical and cultural context for social issues and human rights in ethnically diverse Guatemala. Students will learn about the long civil war and its continuing effects on the large indigenous population of Mayans and ladinos. Students will gain exposure to education, health and human services in systems different from those in the U.S. GE education abroad course.			

<b>5805</b>	<b>Theories and Biological Basis of Substance Misuse</b>	<b>U G</b>	<b>3</b>
<p>The focus of this course is to explore traditional and contemporary theories, and their supporting evidence, related to substance misuse and the etiology of substance use disorders (including addiction). Satisfactory completion of introductory psychology and introductory biology course content is preferable/recommended, but not required. Prereq: Jr, Sr, or Grad standing; or permission of instructor. Not open to students with credit for 3805.</p>			
<b>5806</b>	<b>Diagnosis and Treatment of Substance Use Disorders</b>	<b>U G</b>	<b>3</b>
<p>The focus of this course is to introduce concepts and current issues related to screening, assessment, diagnosis, and treatment for individuals with potential substance use disorders. It is also designed to meet chemical dependency educational content for Ohio's Licensed Chemical Dependency Counselor credentials. Prereq or concur: 3805 or 5805.</p>			
<b>5807</b>	<b>Preventing Substance Misuse</b>	<b>U G</b>	<b>3</b>
<p>Introduces students to evidence-based strategies and techniques that are used to prevent individuals from developing a substance use disorder; focuses on prevention as a science and highlights several theories and methodologies that govern prevention practice. Designed to meet chemical dependency educational content for Ohio's Licensed Chemical Dependency Board's Prevention Professional creds. Prereq or concur: 3805 or 5805.</p>			
<b>5808</b>	<b>Group and Relationship Approaches Addressing Substance Misuse</b>	<b>U G</b>	<b>3</b>
<p>Course focus is to introduce evidence-based, evidence-supported, and evidence-informed models and techniques for group, family, and relationship-based interventions concerning substance misuse; surveys the evidence, techniques applied in group intervention for addressing substance misuse and related problems. Course is designed to meet educational content for Ohio chemical dependency licensure. Prereq or concur: 3805 or 5805. Not open to students with credit for 3808.</p>			
<b>5809</b>	<b>Intervening with Individuals Regarding Substance Misuse</b>	<b>U G</b>	<b>3</b>
<p>Course introduces students to evidence-based, evidence-supported, and evidence-informed strategies and techniques used with individuals to treat a substance use disorder. It is also designed to meet chemical dependency educational content for Ohio's Licensed Chemical Dependency Board's Prevention Professional credentials. Prereq or concur: 3806 or 5806.</p>			
<b>6188</b>	<b>Preparing for Field Education</b>	<b>G</b>	<b>1</b>
<p>Prepares students to be active learners and leaders in field by providing an orientation to field education, policies and procedures and training on Ohio Benefits Bank, safety, mental wellness and self-care, and the importance of field education. Students will learn expectations of professional and ethical behavior and communication and how to screen and access public benefits for clients. Prereq: MSW I standing. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.</p>			
<b>6189</b>	<b>Field Practicum</b>	<b>G</b>	<b>2</b>
<p>The focus in field practicum during this part of the educational program is on core social work competencies and learning activities with interrelated and interdependent human systems: individuals, families, groups, organizations, and communities. Prereq or concur: 6501 (744) and 6188. Repeatable to a maximum of 5 cr hrs or 3 completions. This course is graded S/U.</p>			
<b>6201</b>	<b>Social and Economic Justice</b>	<b>G</b>	<b>3</b>
<p>This course will provide students with foundation knowledge related to social justice in the context of social welfare in advancing human rights of all people. Prereq: Grad standing in Social Work. Not open to students enrolled in the following subplans: ASP, ASF, ASP/ONL, ASF/ONL.</p>			
<b>6202</b>	<b>Diversity and Cultural Competence</b>	<b>G</b>	<b>3</b>
<p>Conceptual framework for effective and culturally sensitive social work practice with oppressed and vulnerable populations. Prereq: Grad standing in Social Work. Not open to students in the following subplans: ASP, ASF, ASP/ONL, ASF/ONL.</p>			
<b>6301</b>	<b>Social Work Perspectives on Development and Behavior Across the Lifespan</b>	<b>G</b>	<b>3</b>
<p>Understand the biopsychosocial processes of human development that influence individuals' behavior across the lifespan in order to conduct effective prevention and intervention plans. Prereq: Grad standing in Social Work. Not open to students enrolled in the following subplans: ASP, ASF, ASP/ONL, ASF/ONL.</p>			
<b>6302</b>	<b>Organizational &amp; Community Systems</b>	<b>G</b>	<b>3</b>
<p>Critically examines explanatory theory regarding the functioning of human service organizations, residential institutions, and communities with applications to social work assessment and intervention. Prereq: Grad standing in Social Work. Not open to students enrolled in the following subplans: ASP, ASF, ASP/ONL, ASF/ONL.</p>			

<b>6401</b>	<b>Engaging with Evidence</b>	<b>G</b>	<b>3</b>
<p>Develop the requisite values, skills, and knowledge for beginning to apply evidence in identifying, selecting and evaluating social work practices at all levels of intervention, and for introducing those aspects of engaging with evidence that are critical to developing well-reasoned proposals for social work services and intervention programs based on social work evidence. Prereq: Grad standing in Social Work. Not open to students enrolled in the following subplans: ASP, ASF, ASP/ONL, ASF/ONL.</p>			
<b>6501</b>	<b>Engaging and Entering the Profession</b>	<b>G</b>	<b>4</b>
<p>Introduces students to the knowledge, skills and values needed to prepare for and engage in social work with vulnerable and oppressed populations. Prereq: Grad standing in Social Work. Not open to students in the following subplans: ASP, ASF, ASP/ONL, ASF/ONL. This course is graded S/U.</p>			
<b>7189</b>	<b>Advanced Field Practicum</b>	<b>G</b>	<b>1 - 4</b>
<p>An internship in a social work agency where students will integrate advanced classroom knowledge and skills with practice experiences. Prereq: 6189 (789.01 or 789.02 or 789.03 or 789.04 or 789.05 or 789.06) or 7400 (or 747). Repeatable to a maximum of 8 cr hrs or 4 completions. This course is graded S/U.</p>			
<b>7193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
<p>Individual study projects in selected areas of social work and social welfare. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.</p>			
<b>7194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
<p>Specialized topic courses in areas of social work and social welfare. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.</p>			
<b>7199</b>	<b>Thesis Research</b>	<b>G</b>	<b>1 - 3</b>
<p>Individual thesis research projects in selected areas of social work and social welfare. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.</p>			
<b>7400</b>	<b>Evidence in Social Work Practice</b>	<b>G</b>	<b>2</b>
<p>Students develop knowledge, values and skills about evidence to inform practice and prepare to analyze evidence at all levels of practice. Prereq: ASAP status.</p>			
<b>7401</b>	<b>Social Work Evaluation I</b>	<b>G</b>	<b>3</b>
<p>This is a two semester course sequence focusing on how to evaluate social work practice and programs. Over the two semesters students will learn how to design an appropriate evaluation strategy, select relevant outcome measure, collect and analyze evaluation data, and use evaluation outcomes to guide practice and policy decisions. Prereq: 6401 (770 and 771) or 7400 (770 and 771) or 8401. Not open to students with credit for 772.</p>			
<b>7402</b>	<b>Social Work Evaluation II</b>	<b>G</b>	<b>3</b>
<p>This is a two semester course sequence focusing on how to evaluate social work practice and programs. Over the two semesters students will learn how to design an appropriate evaluation strategy, select relevant outcome measure, collect and analyze evaluation data, and use evaluation outcomes to guide practice and policy decisions. Prereq: 7401 or 7403. Not open to students with credit for 772 or 7404.</p>			
<b>7403</b>	<b>Evaluating Programs and Policies</b>	<b>G</b>	<b>3</b>
<p>Teaches methods for conducting social service program and policy needs assessment, process evaluation, and outcome evaluations. Prereq: 6401 (770 and 771) or 7400 (770 and 771). Not open to students with credit for 772.</p>			
<b>7404</b>	<b>Applied Program and Policy Evaluation</b>	<b>G</b>	<b>3</b>
<p>MSW capstone course where students apply the knowledge and skills they have previously acquired to complete a program or policy evaluation project. Prereq: 7403.</p>			
<b>7484</b>	<b>Informatics</b>	<b>G</b>	<b>1</b>
<p>To refine, expand, and extend clinical transformation education to all medical, nursing, and other health professional students. Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in Nursing.</p>			
<b>7496</b>	<b>Opioid Use Disorder</b>	<b>G</b>	<b>2</b>
<p>Evidence-based training in opioid use disorder (OUD) prevention, diagnosis, and treatment, emphasizing Medication-Assisted Treatment (MAT), to interdisciplinary teams of pharmacy, health and rehabilitation sciences, nursing, medicine and social work students to assure an interprofessional work force prepared to address the opioid epidemic. Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in Nursing.</p>			
<b>7500</b>	<b>Professional Development</b>	<b>G</b>	<b>2</b>
<p>Introduces ASAP student to the knowledge, skills, and values needed to prepare for and engage in the second year field practice experience. Prereq: ASAP standing. Not open to students with credit for 747.</p>			

## 420 Social Work

<b>7510</b>	<b>Strengths-based Clinical Social Work with Individual Adults</b>	<b>G</b>	<b>3</b>
Students will learn several research-informed clinical social work approaches for working with the strengths of individual adults to effect client change such as solution-focused therapy, narrative therapy, strategic therapy, and cognitive-behavioral therapy. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7511</b>	<b>Clinical Social Work with Children and Adolescents</b>	<b>G</b>	<b>3</b>
Course focuses specifically on the preschool, school aged children and adolescents and provides an overview of: 1) the background of mental health treatment of children/adolescents; 2) development in context; 3) developmental psychopathology; 4) the helping process; and 5) common childhood/adolescent disorders. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7512</b>	<b>Clinical Social Work with Couples and Families</b>	<b>G</b>	<b>3</b>
Emphasizes a treatment approach that views family members as making up an interlocking system that is the context for the formation and resolution of problems of the family and its members. Focuses on the family as the client rather than individual family members and emphasizes the process and stages of intervention. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7513</b>	<b>Clinical Social Work with Groups</b>	<b>G</b>	<b>3</b>
Process and methods of advanced clinical social work with groups using various theoretical approaches with different types of groups and member diversity in various settings. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744 or 745 or 746); or 7400 and 7500. Not open to students with credit for 741.05.			
<b>7514</b>	<b>Behavioral Methods in Social Work</b>	<b>G</b>	<b>3</b>
Fundamental principles and practice of cognitive behavioral treatment (CBT) methods in social work across a variety of settings, practice problems, and client populations. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744 or 745 or 746); or 7400 and 7500.			
<b>7515</b>	<b>Crisis Intervention and Trauma Treatment</b>	<b>G</b>	<b>3</b>
Covers different approaches and common steps involved in intervening with clients experiencing a crisis. Given that many clients find experiencing a crisis to be traumatic, this course will also cover several research-informed approaches for treating trauma and post-traumatic stress disorder (PTSD). Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7516</b>	<b>Assessment and Diagnosis in Clinical Social Work Practice</b>	<b>G</b>	<b>3</b>
This course looks at patterns of human behavior and psychosocial functioning conceptualized as psychopathology, deviance, and/or responses to extreme stress. The content addresses such concepts as function and dysfunction, mental health and mental illness, and normality and abnormality. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7517</b>	<b>Social Work Practice in Schools</b>	<b>G</b>	<b>3</b>
Prepares students to work effectively in the education setting as a licensed school social worker. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7518</b>	<b>Advanced Case Management</b>	<b>G</b>	<b>1½</b>
Development of competencies in the provision of case management services to address various complex client problems. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7519</b>	<b>Advanced Practice in Motivational Interviewing</b>	<b>G</b>	<b>1½</b>
Course provides students with advanced practice knowledge, skills, and values related to engaging clients in motivational interviewing conversations for the purpose of promoting their intentional behavior change processes. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7520</b>	<b>Pharmacotherapy in Social Work Mental Health and Substance Abuse</b>	<b>G</b>	<b>1½</b>
A survey of key principles, issues, and social work practice implications related to common interventions involving medications for addressing mental health and substance abuse problems. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7521</b>	<b>Evidence-based Substance Abuse Treatment</b>	<b>G</b>	<b>3</b>
Examines specific evidence-informed social work practices in assessment, diagnosis, treatment, prevention, and relapse prevention with substance misuse, abuse, and dependence. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7523</b>	<b>Clinical SW Practice with Older Adults</b>	<b>G</b>	<b>3</b>
Advanced clinical practice with a focus on evidenced-based treatment modalities for older persons and their families. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500. Not open to students with credit for 751.02.			

<b>7530</b>	<b>Needs Assessment and Program Design</b>	<b>G</b>	<b>3</b>
Introduces program development and design, the skills for program implementation and management, needs assessment and program design for collective decision-making in organizations, systems and communities. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7531</b>	<b>Resource Acquisition for Human Service Organizations</b>	<b>G</b>	<b>3</b>
Offers methods of acquiring financial and material resources for human service programs through grant writing, fund raising, lobbying, and campaigns. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500. Not open to students with credit for 742.07.			
<b>7532</b>	<b>Supervision and Human Resource Management</b>	<b>G</b>	<b>3</b>
Provides an overview of models and specific skills used in social work supervision and effective management of the human resources which are appropriate to both clinical and community practice settings. The focus of the course is to acquire the knowledge and skills needed to manage human service workers effectively. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7533</b>	<b>Financial Management</b>	<b>G</b>	<b>3</b>
Basic knowledge and skills of financial management in nonprofit human service organizations. Financing, budgeting and accounting are covered. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500. Not open to students with credit for 742.05.			
<b>7534</b>	<b>Prevention Strategies in Social Work Practice</b>	<b>G</b>	<b>1½</b>
Examines prevention models, the evidence surrounding specific preventive interventions, and practice issues related to implementing prevention approaches. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7550</b>	<b>Community Practice and Development</b>	<b>G</b>	<b>3</b>
Prepares students for social work practice in community settings including engagement, assessment, intervention, evaluation in community practice. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744 or 745 or 746); or 7400 and 7500. Not open to students with credit for 730.03.			
<b>7551</b>	<b>Strategic Planning for Organizational and Community Change</b>	<b>G</b>	<b>3</b>
Use strategic planning methods for engaging others; assessing strengths, needs, and environment; setting goals; developing plans; fostering support and partnerships; and evaluating and monitoring results. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7570</b>	<b>Policy Analysis and Social Legislation Process</b>	<b>G</b>	<b>3</b>
Covers the legislative process of social welfare policy making and provides analytical skills of policy analysis to help legislators with policy choices at both state and federal government levels. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500. Not open to students with credit for 752.			
<b>7600</b>	<b>Longitudinal Practice</b>	<b>G</b>	<b>½</b>
Experiential opportunity to build competencies in communication, physical examination, and clinical reasoning emphasizing active participation in team-based care. Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in Nursing.			
<b>7601</b>	<b>Patients within Populations</b>	<b>G</b>	<b>½</b>
Incorporation of patients' concerns, health care provider goals and skills in team based care for patients vulnerable for illnesses and health issues as a result of their ages, social and demographic conditions, culture, and lifestyle choices. Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in Nursing.			
<b>7604</b>	<b>Hotspotting</b>	<b>G</b>	<b>1</b>
Strategic use of data to reallocate resources to a small subset of high-needs, high-cost patients among interdisciplinary teams of pharmacy, health and rehabilitation sciences, nursing, medicine and social work students. Prereq: Enrollment in Interprofessional Healthcare certificate program, or permission of instructor. This course is graded S/U. Cross-listed in Nursing.			
<b>7610</b>	<b>Integrative Seminar I on Aging and Health</b>	<b>G</b>	<b>3</b>
Introduces students to health, illness and geriatric social work. Theories and psychosocial implications are presented, as are experiences and outcomes for diverse populations.			
<b>7611</b>	<b>Integrative Seminar II on Aging and Health</b>	<b>G</b>	<b>3</b>
Introduces students to the critical issues, theories, and knowledge need to understand and work with older persons from an interdisciplinary perspective and at multiple levels. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			

<b>7620</b>	<b>Integrative Seminar I on Mental Health and Substance Abuse</b>	<b>G</b>	<b>3</b>
This course surveys: mental health practice approaches; mental health program and policy issues; mental health research and evaluation. Critical consideration is given to issues relevant to mental health and mental illness across time and stakeholder interests. Students examine public, professional, cultural, economic, and political influences on the development and delivery of mental health care. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7621</b>	<b>Integrative Seminar II on Mental Health and Substance Abuse</b>	<b>G</b>	<b>3</b>
Surveys social work practice, program, and policy issues, theories, and evidence related to substance use, misuse, abuse, and dependency across the lifespan. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7630</b>	<b>Integrated Seminar I on Child and Youth Services</b>	<b>G</b>	<b>3</b>
Course provides students with the opportunity to develop beginning level knowledge and skills for social work practice in the field of services to children and families, as well as knowledge of policies which affect practice in this field. The course is an integrative seminar to explore the continuum of services, programs, and policies which affect families and children. Prereq: 6201, 6301, 6401, and 6501; or 7400 and 7500.			
<b>7631</b>	<b>Integrated Seminar II on Child and Youth Services</b>	<b>G</b>	<b>3</b>
The second of two in a series, prepares students with competencies essential for working with children, youth, and families in various service settings. Prereq: 7630.			
<b>7640</b>	<b>Integrative Seminar I on Community and Social Justice</b>	<b>G</b>	<b>3</b>
Focuses on multiple social systems associated with social and economic inequality. Social intervention and social work practice are critically reviewed for advancing community and social justice. Prereq: 6201 (720 and 721), 6301 (733), 6401 (770 and 771), and 6501 (744, 745, or 746); or 7400 and 7500.			
<b>7641</b>	<b>Integrative Seminar II on Community and Social Justice</b>	<b>G</b>	<b>3</b>
Focuses on social issues and intervention strategies at the organizational, community, and policy levels using a social structural perspective to assess social interventions and discusses alternative interventions. Prereq: 7640.			
<b>7717</b>	<b>Interdisciplinary Perspective on Developmental Disabilities</b>	<b>G</b>	<b>3</b>
Provides an introduction to the psychosocial, medical, and educational implications of developmental disabilities. Prereq: Permission of instructor. Not open to students with credit for 717.01 or 717.03. Cross-listed in HthRhSc, EducSt, Nursing, Psych, and SphHrng.			
<b>7718</b>	<b>Interdisciplinary Perspective on Autism Spectrum Disorders</b>	<b>G</b>	<b>3</b>
Teaches the analytical skills necessary to comprehend and formulate an interdisciplinary framework relating to major scientific and theoretical perspectives in autism spectrum disorders. Prereq: Permission of instructor. Not open to students with credit for 717.01 and 717.02. Cross-listed in HthRhSc, EducSt, Nursing, Psych, and SphHrng.			
<b>8101</b>	<b>Research and Professional Development Seminar</b>	<b>G</b>	<b>1</b>
Provides a foundation for doctoral study in social work, emphasizing issues in translational research, standards for research and scholarship, transition from practitioner to academic. Prereq: Doctoral standing in Social Work or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 5</b>
Independent study under the supervision of a faculty member. Prereq: Doct standing in SocWork. Repeatable to a maximum of 8 cr hrs or 8 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies</b>	<b>G</b>	<b>1 - 3</b>
Specialized topic courses in areas of social work and social welfare. Prereq: Doctoral student in SocWork. Repeatable to a maximum of 9 cr hrs or 9 completions.			
<b>8201</b>	<b>Knowledge Building</b>	<b>G</b>	<b>3</b>
Examines the role of theory and elements of knowledge development for social work, social policy, and social change. Prereq: Doct standing. Not open to students with credit for 900.01.			
<b>8202</b>	<b>Theories of Change for Social Problem Interventions</b>	<b>G</b>	<b>3</b>
Develops students' knowledge of theory and research concerning processes of change with individuals and larger systems, occurring with or outside of planned interventions. Not open to MSW students, but could be open to thesis master's students in other disciplines with permission of instructor. Prereq: Doct standing, or permission of instructor. Not open to students with credit for 900.02 or 900.03.			

<b>8401</b>	<b>Methods for Social Work Research</b>	<b>G</b>	<b>3</b>
Course introduces the components and features of qualitative, quantitative, and mixed methods research that contributes to the interdisciplinary knowledge base used in social work, spanning, for example, developmental processes, behavior, health, mental health, social ecological influences, and social intervention. Prereq: Doct standing in SocWork; or Grad standing, and permission of instructor.			
<b>8402</b>	<b>Qualitative Methods in Social Work Research</b>	<b>G</b>	<b>3</b>
Course reviews basic knowledge on qualitative research; the epistemologies, ontologies, and methodologies pertinent to qualitative inquiry. Paradigmatic, ethical, theoretical, historical, and political issues involved in the conceptualization and conduct of qualitative research are reviewed, with specific application to social work research. Prereq: Doct standing, or permission of instructor.			
<b>8403</b>	<b>Intervention Development and Research in Social Work</b>	<b>G</b>	<b>3</b>
Course guides students in the development of an intervention that addresses an issue in their practice area. They will use/build upon knowledge related to their area of interest. Students will gain knowledge of the prevalence and nature of the issue, the understanding of the individual and social environmental factors contributing to it, and familiarity with existing interventions that address it. Prereq or concur: 8401, and Doct standing in SocWork; or Grad standing, and permission of instructor.			
<b>8404</b>	<b>Implementation Science in Health and Human Service Organizations and Systems</b>	<b>G</b>	<b>3</b>
Familiarizes students with the current state of the knowledge, theories and frameworks, research design, and methods for studying the dissemination, adoption, implementation, and sustainment of interventions in the context of organizations and systems. Given the complex and multi-level context of implementation research, course will cover pragmatic designs and an array of methodological approaches. Prereq: 8402, or equiv. qualitative research course, as determined by instructor, with permission granted by instructor.			
<b>8405</b>	<b>Structural Equation Modeling for the Social and Behavioral Sciences</b>	<b>G</b>	<b>3</b>
Students will learn fundamental concepts, best practices, and skills to conduct and interpret results from three common types of SEM: path analysis, confirmatory factor analysis, and general structural equation models. Appropriate methods for typical types of social science data will be emphasized. Students will also be introduced to two approaches to longitudinal modeling in SEM. Prereq: Doct standing in SocWork, or permission of instructor.			
<b>8406</b>	<b>Mixed Methods Research in Social and Health Sciences</b>	<b>G</b>	<b>3</b>
Course provides an overview of mixed methods approaches, with an emphasis on application to social and health sciences research. Discusses the history and philosophy underlying mixed methods research with a focus on the epistemological underpinnings of mixed methods designs and their components. Research traditions incorporated under the umbrellas of quantitative/qualitative methods are considered. Prereq: 8401 and 8402, and Doct standing in SocWork; or Grad standing, and permission of instructor.			
<b>8407</b>	<b>Methods for Social Welfare Policy Research</b>	<b>G</b>	<b>3</b>
Course focuses on the use of empirical methods in social welfare policy research and acquaints students with several key analytic approaches through a series of directed readings on quantitative work in social welfare policy. Discusses the strengths and limitations of multiple regression analysis and the relationship between regression and causal modeling. Extensions and alternatives are discussed. Prereq or concur: 8401, and Doct standing in SocWork; or Grad standing, and permission of instructor.			
<b>8408</b>	<b>Statistics I for Social Work Research</b>	<b>G</b>	<b>3</b>
Stats I will equip students with knowledge of the role of quantitative analyses in social work research and its relationship to other components of the research process. Content in the course will be related to topics studied in students' research methods and theory courses. Will focus on the application of skills using SPSS and Stata software and on the reporting of findings from analyses. Prereq: Doct standing in SocWork; or Grad standing, and permission of instructor.			
<b>8409</b>	<b>Statistics II for Social Work Research</b>	<b>G</b>	<b>3</b>
Stats II focuses on two topics central to social science research: multiple regression and the development of measures or scales. Introductory to intermediate regression topics will be covered, such as mediation, moderation, dummy variables in regression, and hierarchical regression. The course will prepare students to conduct power analyses, and to generate and interpret confidence intervals. Prereq: Doct standing in SocWork; or Grad standing, and permission of instructor.			
<b>8501</b>	<b>International Social Work and Social Development</b>	<b>G</b>	<b>3</b>
This course focuses on the multidimensional and dynamic local, national, regional, and international contexts and issues that help shape human welfare and social development in various parts of the globe. The course is designed to analyze theories, models, and strategies of social development in industrialized and developing countries. Prereq: Doct standing in SocWork, or permission of instructor. Not open to students with credit for 902.04.			

## 422 Social Work

**8502 Social Work Education: Pedagogy, Skills, Opportunities, and Challenges** G 3

This course prepares students to assume educator roles and activities by developing knowledge and skills for effectively engaging in the development and delivery of social work education and engaging in delivering varied professional education activities.  
Prereq: Enrollment in the Doctoral Social Work program; or Grad standing, and permission of instructor.

**8503 Job Search Seminar** G 3

Course will provide doctoral students with essential knowledge and skills for a successful academic job search. Topics include self-assessment, career planning, effective job search tools and skills, application material, interviewing, campus visits, job offers and negotiation, and transitioning to professional life.

Prereq: Enrollment in the Doctoral Social Work program; or Grad standing, and permission of instructor. This course is graded S/U.

**8998 Research** G 1 - 12

Research for independent project or preparation of the written candidacy examination.  
Prereq: Doct standing in SocWork. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.

**8999 Research for Dissertation** G 1 - 3

Dissertation research and writing under the direction of advisor and dissertation committee.  
Prereq: Doct standing in SocWork. Repeatable to a maximum of 30 cr hrs or 10 completions. This course is progress graded (S/U).

## Sociology

**1101 Introductory Sociology** U 3

Fundamental concepts of sociology and introduction to the analysis of social problems and interactions (e.g. wealth, gender, race, inequality, family, crime) using sociological theories. Au, Sp, Su Sems. Prereq: Not open to students with credit for 1101H (101H), 1101E, 101, RurlSoc 1500 (105), or equiv. GE soc sci orgs and politics and diversity soc div in the US course.

**1101H Introduction to Sociology (Honors)** U 3

Fundamentals of sociology and introduction to the analysis of social problems and social interactions, (e.g., wealth, gender, race inequality, family, crime) using sociological theories. Au, Sp, Su Sems. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for 1101H (101H), 1101E, 101, RurlSoc 1500 (105), or equiv. GE soc sci orgs and politics and diversity soc div in the US course. SS Admis Cond course.

**2194 Group Studies** U 3

Topics vary each semester offered.  
Repeatable to a maximum of 6 cr hrs.

**2202 Social Problems and Public Policy** U 3

Analysis of contemporary social problems such as inequality, discrimination, and crime.

**2209 Introduction to Criminal Justice** U 3

Examination of the development and administration of criminal law and agencies (police, courts, corrections); emphasis on criminal proceedings and their justification.  
Prereq: Not open to students with credit for 209.

**2210 Sociological Aspects of Deviance** U 3

Study of the definition, identification, treatment, and control of types of legal, moral, and status deviance, such as crime, mental illness, alcoholism, and other individual pathologies. Au, Sp Sems. Prereq: Not open to students with credit for 210. GE soc sci indivs and groups course.

**2211S Corrections: An Inside-Out Course** U 3

Examines theory and policy, and is comprised of OSU students and prison inmates with class meetings held in a local state prison. Though course is repeatable, only one iteration will count for GE credit.

Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. GE service learning course.

**2290 Sociology of Death and Dying** U 3

Provides a sociological overview of death and dying, including the demographics of death, social epidemiology, and social meanings of death and dying.  
Prereq: Not open to students with credit for 290.

**2300 Sociology of Culture and Popular Culture** U 3

Provides a sociological understanding of culture including the influence of culture on inequality and social change and sociological interpretations of popular culture. The course will examine how sociologists define and empirically study culture; theoretical approaches; aspects of culture including media, consumer goods, etc; prevalence of cultural patterns in all societies.

**2309 Introduction to Law and Society** U 3

Introduction to the law as a social institution, including the origins of law and its relationship to other social institutions, social control, and social change.

**2310 Sociology of Gangs** U 3

Broad range of topics related to gang activity with a focus on why individuals join gangs, societal consequences of gangs, and social policy.  
Prereq: Not open to students with credit for 310.

**2320 Sociology of Education** U 3

Current social trends as they affect education; backgrounds of school children, social status of teachers, role of power and bureaucracy.  
Prereq: Not open to students with credit for 320. GE soc sci human, nat, and econ resources course.

**2330 Marriage and Society** U 3

The impact of modern society and social policies on marriage forms emphasizing mate selection, cohabitation, marriage alternatives, and interactional patterns within the family.  
Prereq: Not open to students with credit for 330.

**2340 Sex and Love in Modern Society** U 3

How behavior and meanings relating to sex and love have changed in recent decades; what explains these changes and the consequences of these changes.  
Prereq: Not open to students with credit for 340.

**2345 The Social Structure of American Society** U 3

An exposition of the structural patterns of American society, using sociological theories and data to form an integrated perspective.  
Prereq: Not open to students with credit for 345. GE soc sci orgs and politics course.

**2367.01H The Political Elite and Interest Groups (Honors)** U 3

Sociological analysis of American politics and society, emphasizing political elites and interest groups, and the changing role of the state in the economy.  
Prereq: Honors standing, and English 1110 (110), 1111, or 111, or equivalent; or permission of department or instructor. Not open to students with credit for 367.01H. GE writing and comm: level 2 and soc sci orgs and politics course.

**2367.02 Urban Social Problems** U 3

The place of the city in social organization; the emergence, nature, and problems of modern urbanism; projects based in census and field data.  
Prereq: English 1110 (110) or 1111 (111) or equiv. Not open to students with credit for 367.02. GE writing and comm course: level 2 and soc sci orgs and politics course.

**2370 Social Psychology in Sociological Perspective** U 3

Analysis of relationships between society and the individual. Learning of motives and social roles, socialization, group organization and disorganization. Development of self and personality.  
Prereq: Not open to students with credit for 370. GE soc sci indivs and groups course.

**2391 Social Organization of Communities** U 3

Development of the modern community; approaches to the study of communities; significance of processes and value systems for community organization and disorganization.  
Prereq: Not open to students with credit for 391.

**2797 Study at a Foreign Institution** U 1 - 9

An opportunity for students to study at a foreign institution and receive Ohio State credit for their work. Students will pay Ohio State fees in excess of Ohio State tuition as well as all travel and subsistence costs.  
Prereq: Permission of department chairperson. Repeatable to a maximum of 27 cr hrs or 3 completions. This course is graded S/U.

**3191 Internship Program in Sociology and Criminology** U 1 - 6

An opportunity for work experience and on-the-job learning in sociology and criminology related employment. Employment or experience through the Internship Program conducted under the supervision of the internship coordinator. Requires completion of internship learning agreement.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.

**3200 Sociology of Immigration** U 3

Provides a sociological understanding of contemporary migration both globally and with a particular focus on the U.S. The course will examine why migration occurs; how it is sustained over time; and how immigrants are incorporated into the host society. Social relations as central to understanding immigration will be a focus of the course.  
GE diversity soc div in the US course.

**3302 Technology and Global Society** U 3

Social aspects of technology, social change, and technological development; underdevelopment and the global economy.  
Prereq: Not open to students with credit for Sociol 302.

**3306 Sociology of Poverty** U 3

A study of low-income peoples, especially concerning the effect of poverty on them, and their consequent social participation.  
GE diversity soc div in the US course.

**3315 Sociology of Terrorism** U 3

Provides a broad review of the definitions, histories, types, and theories of terrorism from a sociological perspective.  
Prereq: Not open to students with credit for 315.

**3380 Racial and Ethnic Relations in America** U 3

Historical and contemporary study of race and ethnicity in the U.S. with a focus on relations within and between groups.  
Prereq: Not open to students with credit for 2380 or 380. GE soc sci indivs and groups course.



<b>3410</b>	<b>Criminology</b>	<b>U</b>	<b>3</b>
Theories of delinquency, crime, and criminal careers; scientific aspects of crime measurement. Prereq: Not open to students with credit for 410.			
<b>3410H</b>	<b>Criminology (Honors)</b>	<b>U</b>	<b>3</b>
Theories of delinquency, crime, and criminal careers; scientific aspects of crime measurement. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for 410H.			
<b>3430</b>	<b>Sociology of the Family</b>	<b>U</b>	<b>3</b>
Analysis of relationships between the family and the larger society including mate selection, status of women, and patterns of husband-wife and parent-child relationships. Prereq: Not open to students with credit for 430.			
<b>3434</b>	<b>The Child and Society</b>	<b>U</b>	<b>3</b>
A study of the ways in which society socializes children; current breakdown in the socializing processes and implications for the school and other educational agencies. Prereq: Not open to students with credit for 434.			
<b>3435</b>	<b>Sociology of Gender</b>	<b>U</b>	<b>3</b>
Analyzes multilevel processes that differentiate women and men in education, employment, and relationships. Examines variations in gendered experiences across race-ethnicity, social class, and sexuality. Prereq: Not open to students with credit for 435. GE diversity soc div in the US course.			
<b>3460</b>	<b>Environmental Justice</b>	<b>U</b>	<b>3</b>
Examines environmental issues from a sociological perspective, especially human causes of environmental change such as technology, population, and consumption, and social reactions. Prereq: Not open to students with credit for 460. GE soc sci human, nat, and econ resources course.			
<b>3463</b>	<b>Social Stratification: Race, Class, and Gender</b>	<b>U</b>	<b>3</b>
The study of social inequality with a focus on inequalities by class and status, race and ethnicity, and gender. GE soc sci human, nat, and econ resources course.			
<b>3463H</b>	<b>Social Stratification: Race, Class, and Gender (Honors)</b>	<b>U</b>	<b>3</b>
The study of social inequality with a focus on inequalities by class and status, race and ethnicity, and gender. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for 463H. GE soc sci human, nat, and econ resources course.			
<b>3464</b>	<b>Work, Employment, and Society</b>	<b>U</b>	<b>3</b>
Analysis of work organization; control and authority relationships in the workplace; comparative studies of work and labor movements; industrial decline; automation. Prereq: Not open to students with credit for 464.			
<b>3467</b>	<b>Sociology of Religion</b>	<b>U</b>	<b>3</b>
The social role of religious institutions and beliefs, with particular reference to the United States; the relation between religion and other aspects of society. Prereq: Not open to students with credit for 467. GE diversity soc div in the US course.			
<b>3487</b>	<b>Research Methods in Sociology</b>	<b>U</b>	<b>3</b>
Introduction to sociological research techniques, methodological approaches, and relevant quantitative procedures. Prereq: Not open to students with credit for 487.			
<b>3487H</b>	<b>Research Methods in Sociology (Honors)</b>	<b>U</b>	<b>3</b>
Introduction to sociological research techniques, methodological approaches, and relevant quantitative procedures. Prereq: Honors standing, or permission of department or instructor. Not open to students with credit for 487H.			
<b>3488</b>	<b>Introduction to Sociological Theory</b>	<b>U</b>	<b>3</b>
Introductory statement of the nature of sociological theory, its basic problems, assumptions, major types and orientations, and principal contributions to the discipline. Prereq: 3 or hrs taken at 2000-3000 level. Not open to students with credit for 488.			
<b>3549</b>	<b>Statistics in Sociology</b>	<b>U</b>	<b>3</b>
An introduction to the application and interpretation of quantitative analysis in sociological research; emphasis on the description of social variables and hypothesis testing. Au, Sp, Su Sems. Prereq: Not open to students with credit for 549. GE data only course.			
<b>3597.01</b>	<b>World Problems in Global Context</b>	<b>U</b>	<b>3</b>
Sociological analysis of contemporary world societies - non-industrialized, industrializing, and industrialized - with special attention to major social institutions and patterns of social change. Prereq: Not open to students with credit for 597.01. GE diversity global studies and cross-disciplinary seminar course.			
<b>3597.02</b>	<b>World Population Problems</b>	<b>U</b>	<b>3</b>
General introduction to population studies, emphasizing how population growth and structure have caused or aggravated social problems in various countries. Prereq: A general education quantitative reasoning course. Not open to students with credit for 597.02. GE diversity global studies and cross-disciplinary seminar course.			

<b>3630</b>	<b>Medical Sociology</b>	<b>U</b>	<b>3</b>
Sociological analysis of the distribution of disease, and the nature of health care institutions, health professions, and the delivery of health care services. Prereq: Not open to students with credit for 630.			
<b>3798.03</b>	<b>Genocide and its Aftermath in Rwanda</b>	<b>U</b>	<b>3</b>
Course explores the 1994 Rwandan genocide through active learning experiences in Rwanda. Topics include: origins and causes of the genocide in Rwanda and globally; forms of violence, participants, and victims; aftermath and legal response including gacaca courts and collective memories; and human rights, development, and economic growth in Rwanda today. Prereq: Permission of instructor. GE education abroad course.			
<b>4000E</b>	<b>Social Science Business Collaborative: A Service Learning Approach</b>	<b>U</b>	<b>3</b>
Sociology 4000E is an Honors Embedded course in which students learn to develop research projects through collaboration with a local business on a service project. Uses University resources to address community issues, facilitate data collection, learn project management and present research findings in academic and applied settings and learn through improving the community. Prereq: Honors standing, and 1101; or permission of instructor. Repeatable to a maximum of 6 or hrs. GE service learning course.			
<b>4000S</b>	<b>Social Science Business Collaborative: A Service Learning Approach</b>	<b>U</b>	<b>3</b>
Sociology 4000S is course that helps students develop research projects through collaboration with a local business to work on a service project; link university resources to bear on community issues, facilitate data collection, learn project management, present research findings in academic and applied settings, learn through improving the community. Prereq: 1101, or permission of instructor. Repeatable to a maximum of 6 or hrs. GE service learning course.			
<b>4189.02</b>	<b>Fieldwork in Criminology and Criminal Justice</b>	<b>U</b>	<b>3</b>
Practicum in criminology and/or the criminal justice system. Credit does not apply to hours in the sociology/criminology major. Prereq: Enrollment in Sociology or Criminology major, or permission of instructor. Not open to students with credit for 589.02. This course is graded S/U.			
<b>4189.03</b>	<b>Criminal Investigation</b>	<b>U</b>	<b>3</b>
Theory and practice of criminal investigation and prosecution in the U.S. Criminal Justice System with attention to: (1) the roles of the law enforcement officer, prosecutor, and court personnel; (2) familiarization with various investigative techniques; (3) the collection and preservation of physical evidence; and (4) constitutional limitations and ethical considerations. Prereq: Enrollment in Criminology major or minor, or permission of instructor.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 6</b>
Individual studies. Prereq: 12 or hrs in Sociol, and permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>4463</b>	<b>Food and Inequality in the United States</b>	<b>U</b>	<b>3</b>
An examination of the topic of social inequality through the lens of food. An analysis of how social stratification affects individual's access to food, as well as the meaning people attach to food. Prereq: Jr standing or above, or permission of instructor or department. GE soc sci orgs and politics and diversity soc div in the US course.			
<b>4505</b>	<b>Capital Punishment in the United States</b>	<b>U</b>	<b>3</b>
Examines the role of capital punishment in the contemporary United States. Prereq: Jr or Sr standing; or permission of instructor, or department. Not open to students with credit for 505.			
<b>4506</b>	<b>Drugs and Society</b>	<b>U</b>	<b>3</b>
Sociological perspective on substance use. Exploration of the causes, consequences, and criminalization of substance use; consideration of race and class differences in drug enforcement; media portrayals of substance use; global perspectives on drug use and drug law. Prereq: Jr standing or higher, or permission of instructor.			
<b>4507</b>	<b>The Criminal Justice System</b>	<b>U</b>	<b>3</b>
Advanced study of the role and operation of the criminal justice system: police, courts, and corrections. Prereq: Jr standing or above, or permission of instructor or department.			
<b>4508</b>	<b>Violence</b>	<b>U</b>	<b>3</b>
Examines societal definitions of violence, theories that are most commonly invoked to explain violence, and research designed to critically evaluate theories of violence. Prereq: Jr standing or above, or permission of instructor or department. Not open to students with credit for 4670.02, 508, or 673.			
<b>4509</b>	<b>Sociology of Law</b>	<b>U</b>	<b>3</b>
The relationship between law and social order emphasizing the structure of law, social origins of law, and law as a source of social change. Prereq: Jr standing or above, or permission of instructor or department. Not open to students with credit for 509.			

## 424 Sociology

**4510 Gender, Crime, and the Criminal Justice System** U 3

Analysis of females as participants in and victims of crime, the treatment of women in the criminal justice system, women as workers in criminal justice fields.  
Prereq: Jr or Sr standing; or permission of instructor, or department. Not open to students with credit for 510.

**4511 Juvenile Delinquency** U 3

A sociological perspective in youth and crime; special attention to the magnitude of youth crime, theories, juvenile justice systems, and prevention and control efforts.  
Prereq: Jr or Sr standing; or permission of instructor, or department.

**4609 Neighborhoods and Crime** U 3

Exploration of the social distribution of crime, with attention to the patterns and sources of neighborhood crime, and the impact of crime on fear of crime and on neighborhood decline.  
Prereq: Jr or Sr standing; or permission of instructor, or department. Not open to students with credit for 609.

**4610 Sociology of Deviant Behavior** U 3

An examination of the nature, types, and societal reactions to deviant behavior; special emphasis on the process of stigmatization and the emergence of deviant subcultures.  
Prereq: Jr or Sr standing; or permission of instructor, or department. Not open to students with credit for 610.

**4611 Prisons, Jails, and Community Corrections** U 3

Overview of prisons, jails, and community corrections from institutional and prisoner perspectives.  
Prereq: Jr or Sr standing; or permission of instructor, or department. Not open to students with credit for 611.

**4615 Control and Prevention of Crime and Delinquency** U 3

Analysis of the operational effectiveness of special measures and programs pointed toward the control and prevention of crime and delinquency.  
Prereq: Jr or Sr standing; or permission of instructor, or department. Not open to students with credit for 615.

**4635 Gender and Society** U 3

Advanced seminar on the social and personal meanings of masculinity and femininity and variations across race-ethnicity, sexuality, and social class. Examines gender as a social phenomenon and system of social practices.  
Prereq: Jr or Sr standing; or permission of instructor, or department.

**4650 Undergraduate Seminar in Social Networks** U 3

In this seminar, we will study both the theoretical and substantive development of the field of social networks as well as methodological tools necessary for conducting research. We will explore how our relationships significantly shape many aspects of our lives including cognition, motivations, identity, social mobility, group organization and resource distribution.  
Prereq: Any GE Basic Computation, or GE Mathematical or Logical Analysis course; or permission of instructor.

**4655 Sociology of Sport** U 3

Sport from a sociological perspective; relationship of sport to social institutions; socialization into sport; stratification within sports; sport and small group analysis.  
Prereq: Not open to students with credit for 655.

**4998 Undergraduate Research in Sociology** U 1 - 9

Undergraduate research or creative activities in variable topics.  
Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions. This course is graded S/U.

**4999.01 Thesis Research: Sociology (Non-Honors)** U 1 - 3

A conference-thesis course for students not enrolled in the Honors program; subject matter will vary depending upon student's topic.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4999.01H Honors Thesis Research: Sociology (Honors)** U 1 - 3

A conference-thesis course; subject matter will vary depending upon student's topic. At least 2 semesters are required for the degree BA with social distinction. Failure to receive a mark of S in this course is a disqualification for special honors.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4999.02 Thesis Research: Criminology and Criminal Justice (Non-Honors)** U 1 - 3

A conference-thesis course for students not enrolled in the Honors program; subject matter will vary depending upon student's topic.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**4999.02H Honors Thesis Research: Criminology and Criminal Justice (Honors)** U 1 - 3

A conference-thesis course; subject matter will vary depending upon student's topic. At least 2 semesters are required for the degree BA with crimino distinction. Failure to receive a mark of S in this course is a disqualification for special honors.  
Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**5194.01 Group Studies: Sociological Theory** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.02 Group Studies: Social Organization** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.03 Group Studies: Medical Sociology** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.04 Group Studies: Criminology and Criminal Justice** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.05 Group Studies: Sociology of Education** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.06 Group Studies: Race/Ethnicity/Minority Relations** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.07 Group Studies: Social Psychology** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.08 Group Studies: The Family** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.09 Group Studies: Research Methodology** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.10 Group Studies: Urban/Community/Ecology** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs at 2000-3000 (200-400) or higher level. Repeatable to a maximum of 9 cr hrs.

**5194.11 Group Studies: Labor Markets/Economy and Society** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.12 Group Studies: Political Sociology** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.13 Group Studies: Population/Demography** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.14 Group Studies: Gender** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5194.15 Group Studies: Unclassified** U G 3

Topics vary each semester offered.  
Prereq: 3 cr hrs in Sociology at 2000-3000 (200-400) level or above. Repeatable to a maximum of 9 cr hrs.

**5450 Sociology of Global Health and Illness** U G 3

Sociological study of health and illness from a global perspective. Topics include health, illness, and related behaviors; disease processes, correlates of diseases, global efforts to improve health, and comparative health care systems.  
Prereq: Jr, Sr, Grad standing; or permission of instructor, or department. Not open to students with credit for 450. GE diversity global studies course.

**5463 Advanced Social Stratification** U G 3

In-depth theoretical and empirical questions driving the field of inequality, poverty, and social mobility in the 21st century will be explored. We will focus on class, race, and gender inequality in the US, though the course will also develop tools for understanding inequality and poverty across times and places.  
Prereq: Jr, Sr, or Grad standing; or permission of instructor or department.

<b>5503</b>	<b>Social Change in Central and Eastern Europe</b>	<b>U G</b>	<b>3</b>
Examines and discusses various approaches to social change, focusing on Central and Eastern Europe and its transition to the post communist era. It deals with political, economic, and cultural aspects of life in the region. Prereq: 3 cr hrs at 2000-3000 (200-400) or higher level. Not open to students with credit for 503.			
<b>5525</b>	<b>Global Criminology</b>	<b>U G</b>	<b>3</b>
Provides students an introduction to global crime from a criminal justice perspective. Prereq: Jr, Sr, Grad standing; or permission of instructor, or department. Not open to students with credit for 525.			
<b>5605</b>	<b>Sociology of Sexuality</b>	<b>U G</b>	<b>3</b>
A social and institutional approach to the study of sexuality with a focus in sexual identities, practices, institutions, communities, and sexuality movements. Prereq: Jr, Sr, Grad standing; or permission of instructor, or department. Not open to students with credit for 605.			
<b>5618</b>	<b>Sociology of Police and Policing</b>	<b>U G</b>	<b>3</b>
Sociological understanding of the origins of routine police conduct and misconduct; representative topics include police-citizen encounters and police abuse of discretion. Prereq: Jr, Sr, or Grad standing; or permission of instructor, or department. Not open to students with credit for 618.			
<b>5629</b>	<b>Health Disparities in Social Context</b>	<b>U G</b>	<b>3</b>
Analysis of the social determinants of health and health disparities with a focus on stratification/inequality. Includes variations in health disparities over the life course. Prereq: Jr standing or above, or permission of instructor or department. Not open to students with credit for 629.			
<b>5650</b>	<b>Presenting and Communicating Quantitative Data</b>	<b>U G</b>	<b>3</b>
Course will broaden knowledge of social science data sources, sharpen analytic skills, utilize software to graphically present research findings, and develop skills in writing about quantitative research for professional and lay audiences. Prereq: 3487 and 3549, and Jr standing; or permission of instructor.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Students will pay Ohio State fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Prereq: Permission of department chairperson. Repeatable to a maximum of 27 cr hrs or 3 completions. This course is progress graded (S/U).			
<b>5925</b>	<b>Offender Decision Making and Prisoner Reentry</b>	<b>U G</b>	<b>3</b>
Introduces students to research on contemporary issues faced by state and federal correctional systems. The course draws from multidisciplinary scholarship that examines offender decision making, factors that promote recidivism, and how to successfully reintegrate inmates back into society. Prereq: Completion of a 3000-level or higher Social course, and Jr or Sr standing; or Grad standing; or permission of instructor or department.			
<b>5950</b>	<b>Evidence-Based Practice in Criminal Justice</b>	<b>U G</b>	<b>3</b>
This course examines the history and principles of effective evidence-based programs in criminal justice setting. Students will develop an evidence-based solution to a real world problem, in a criminal justice agency of their choosing. Prereq: Completion of a 3000-level or higher Social course, and Jr or Sr standing; or Grad standing; or permission of instructor or department.			
<b>6193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 12</b>
Individual Studies. Repeatable. This course is graded S/U. Prereq: 18 cr hrs in Sociol; or Grad standing, and permission of instructor. Repeatable to a maximum of 99 cr hrs or 99 completions. This course is graded S/U.			
<b>6582</b>	<b>Sociological Theory</b>	<b>G</b>	<b>3</b>
Analysis of classical systems and their representatives, e.g., positivistic social evolutionism (Compte, Spencer, Durkheim), historical materialism (Marx-Engels), and humanistic idealistic reactions (Toennies, Simmel, M. Weber). Prereq: Grad standing. Not open to students with credit for 782.			
<b>6608</b>	<b>Qualitative Methods in Sociology</b>	<b>G</b>	<b>3</b>
A survey of qualitative approaches to social research, including participant observation, intensive interviewing, and archival/documentary analysis. Prereq: Grad standing. Not open to students with credit for 704.			
<b>6649</b>	<b>Intro to Quantitative Research/Multiple Regression</b>	<b>G</b>	<b>3</b>
Assumptions, principles, and applications of the multiple regression model in sociological practice; basic model, dummy variables, and special functional forms. Prereq: Honors standing, and Grad standing; or permission of instructor. Not open to students with credit for 648 or 649.			
<b>6650</b>	<b>Categorical Data Analysis</b>	<b>G</b>	<b>3</b>
Techniques of analysis for examining nominally measured dependent variables, and treatment of error structures that are heteroskedastic or correlated across cases. Prereq: 6649 (649) and Grad standing, or permission of instructor. Not open to students with credit for 703.			

<b>6655</b>	<b>Sociological Research Methods</b>	<b>G</b>	<b>3</b>
Theory and practice in essentials of the research process; comparison of alternative approaches and design models; questionnaire construction, interview techniques, and related problems. Prereq: 6649 (649) or equiv, or permission of instructor. Not open to students with credit for 651.			
<b>6708</b>	<b>Design and Analysis of Qualitative Sociological Research</b>	<b>G</b>	<b>3</b>
Problems and techniques of non-quantitative data analysis including case studies, participant observation, field diary, autobiography, and historical records. Prereq: 6649. Not open to students with credit for 708. Repeatable to a maximum of 10 cr hrs.			
<b>6710</b>	<b>Design and Analysis of Sociological Research</b>	<b>G</b>	<b>3</b>
Problem formulation, hypothesis testing, argumentation from data, and writing for professional audiences; research practicum leading to a research project. Prereq: Grad standing in Sociol, or permission of instructor.			
<b>6800</b>	<b>Proseminar in Sociology</b>	<b>G</b>	<b>1</b>
Each week an area of specialization within sociology will be discussed by a professor whose major interest is in that area; provides an overview of special topics and current issues. Open only to 1st year graduate students. Prereq: Not open to students with credit for 800. This course is progress graded (S/U).			
<b>6802</b>	<b>Teaching Sociology</b>	<b>G</b>	<b>2</b>
Designed to prepare sociology graduate students to teach independent sections of basic sociology classes. Prereq: Grad standing in Sociol, or permission of instructor. Not open to students with credit for 802. This course is progress graded (S/U).			
<b>6999</b>	<b>Research for Thesis</b>	<b>G</b>	<b>1 - 12</b>
Research for thesis purposes only. Au and Sp Semesters Repeatable. This course is graded S/U. Prereq: Not open to students with credit for 998. This course is graded S/U.			
<b>7700</b>	<b>Writing and Publishing in Sociology</b>	<b>G</b>	<b>3</b>
Designed to review the mechanics of writing and publishing in sociology and related specialty journals. Prereq: 6655 (651). Not open to students with credit for 700.			
<b>7710</b>	<b>Introduction to Social Networks</b>	<b>G</b>	<b>3</b>
Focuses on the theoretical and methodological bases of social network analysis. Prereq: Grad standing, and enrollment in Comm or Social program; or permission of instructor. Not open to students with credit for Comm 7710. Cross-listed in Comm.			
<b>7711</b>	<b>Sociology of Work</b>	<b>G</b>	<b>3</b>
A survey of selected topics in sociology of workplace relations; control, administration, leadership, and occupations; theoretical approaches to the study of workplace relations. Prereq: Not open to students with credit for 711.			
<b>7712</b>	<b>Seminar in Social Networks</b>	<b>G</b>	<b>3</b>
The theory, substance, and methods for understanding patterns, causes, and consequences of relationships among populations of actors. Sociol 6649 and 6581 recommended. Prereq: Grad standing, and enrollment in Comm or Social program; or permission of instructor. Not open to students with credit for Comm 7712. Cross-listed in Comm.			
<b>7718</b>	<b>Criminology Theory and Research</b>	<b>G</b>	<b>3</b>
An advanced introduction and critical study of measurement, theory and research in criminology. Prereq: Grad standing or permission of instructor. Not open to students with credit for 718.			
<b>7723</b>	<b>Sociology of Crime Control and Punishment</b>	<b>G</b>	<b>3</b>
Theoretical survey of reactions to crime including arrest, charge, and sentencing. Prereq: Grad standing. Not open to students with credit for 723.			
<b>7735</b>	<b>Sociology of Gender</b>	<b>G</b>	<b>3</b>
An examination of current theory and research on the sociology of gender through extensive readings. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 735.			
<b>7753</b>	<b>Introduction to Demographic Analysis</b>	<b>G</b>	<b>3</b>
An exposition of census data and vital statistics, demographic rates, life tables, cohort analysis, and similar elementary techniques and data sources in demography. Prereq: Graduate standing, or permission of instructor with approval by Graduate School for undergraduate credit.			
<b>7754</b>	<b>Introduction to Demography</b>	<b>G</b>	<b>3</b>
An exposition of census data and vital statistics, demographic rates, life tables, cohort analysis, and similar elementary techniques and data sources in demography. Prereq: One course in Stat. Not open to students with credit for 754.			
<b>7755</b>	<b>Fertility</b>	<b>G</b>	<b>3</b>
A critical and methodological analysis of fertility, with special emphasis on the social context of reproductive behavior in American society.			

## 426 Sociology

<b>7756</b>	<b>Sociology of Immigration</b>	<b>G</b>	<b>3</b>
Theories and models of population mobility; determinants and consequences of migration and immigration processes; policy implications of cross-national and rural-urban migration. Prereq: Not open to students with credit for 756.			
<b>7758</b>	<b>Health Disparities in the United States</b>	<b>G</b>	<b>3</b>
Social and demographic forces that affect well being, health, and survival. Prereq: Grad standing, or permission of instructor with approval by Graduate School for undergraduate credit.			
<b>7760</b>	<b>Sociology of Conflict and Violence</b>	<b>G</b>	<b>3</b>
Comparative analysis of the sources and impact of conflict and violence. Prereq: 10 or hrs in Sociol, or Grad standing. Not open to students with credit for 760.			
<b>7761</b>	<b>Social Stratification</b>	<b>G</b>	<b>3</b>
A survey of major theories, issues, and empirical literature on societal stratification and inequality with particular focus on the United States. Prereq: Not open to students with credit for 761.			
<b>7780</b>	<b>Racial and Ethnic Differences</b>	<b>G</b>	<b>3</b>
An analysis of the origin, persistence, adaptation and change of systems and racial and ethnic differentiation. Prereq: Not open to students with credit for 780.			
<b>7790</b>	<b>Social Organization of the Community</b>	<b>G</b>	<b>3</b>
An examination of the nature, structures, processes, and trends of social organization of modern communities. Prereq: Not open to students with credit for 790.			
<b>7806</b>	<b>Social Movements</b>	<b>G</b>	<b>3</b>
Explores how and why social movements arise and their impact on society. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 806.			
<b>7820</b>	<b>Sociology of Education</b>	<b>G</b>	<b>3</b>
Special problems will be considered in different semesters, including urban education, student movements, bureaucratic-professional problems, school-community relations, and innovation. Prereq: Not open to students with credit for 820.			
<b>7837</b>	<b>Political Sociology</b>	<b>G</b>	<b>3</b>
Selected topics in political sociology. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 837.			
<b>7884.01</b>	<b>Seminar: Sociological Theory</b>	<b>G</b>	<b>3</b>
Topics in sociological theory selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs.			
<b>7884.03</b>	<b>Seminar: Medical Sociology</b>	<b>G</b>	<b>3</b>
Topics in medical sociology selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs.			
<b>7884.04</b>	<b>Seminar: Criminology and Criminal Justice</b>	<b>G</b>	<b>3</b>
Topics in criminology and criminal justice selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7884.06</b>	<b>Seminar: Race/Ethnic/Minority Relations</b>	<b>G</b>	<b>3</b>
Topics in race/ethnic/minority relations selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7884.08</b>	<b>Seminar: The Family</b>	<b>G</b>	<b>3</b>
Topics in family studies selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs.			
<b>7884.09</b>	<b>Seminar: Research Methodology</b>	<b>G</b>	<b>1 - 3</b>
Topics in research methodology selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>7884.10</b>	<b>Seminar: Urban/Community</b>	<b>G</b>	<b>3</b>
Seminar on current topics in the sociological study of social and structural aspects of community and urban life. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7884.11</b>	<b>Seminar: Labor Markets/Economy and Society</b>	<b>G</b>	<b>3</b>
Topics in labor market and economy selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs.			
<b>7884.12</b>	<b>Seminar: Political Sociology</b>	<b>G</b>	<b>3</b>
Topics in political sociology selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs.			

<b>7884.13</b>	<b>Seminar: Population/Demography</b>	<b>G</b>	<b>3</b>
Topics in population/demography selected to give the advanced student opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 12 cr hrs.			
<b>7884.14</b>	<b>Seminar: Gender</b>	<b>G</b>	<b>3</b>
Topics in the sociology of gender selected to give the advanced student opportunities to pursue special studies not otherwise offered. Prereq: Not open to students with credit for 884.14. Repeatable to a maximum of 12 cr hrs.			
<b>7884.15</b>	<b>Seminar: Unclassified</b>	<b>G</b>	<b>3</b>
Unclassified seminar. Prereq: Not open to students with credit for 884.15. Repeatable to a maximum of 12 cr hrs.			
<b>8580</b>	<b>Issues in Contemporary Theory</b>	<b>G</b>	<b>3</b>
A critical examination of contemporary theory in sociology with an emphasis on individual action in the social context. Prereq: 6582 (782), or 6584 (784), or permission of instructor.			
<b>8607</b>	<b>Causal Modeling</b>	<b>G</b>	<b>3</b>
A survey of advanced problems in the multivariate analysis of sociological data. Prereq: 6649 (649). Not open to students with credit for 707.			
<b>8632</b>	<b>Analysis of Longitudinal Data</b>	<b>G</b>	<b>3</b>
Provides an introduction to event history analysis and other types of longitudinal data analysis. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 852.			
<b>8651</b>	<b>Hierarchical Linear Models</b>	<b>G</b>	<b>3</b>
Introduction to hierarchical linear and nonlinear models; review of three level, latent growth curve, cross-classified, and latent variable models for hierarchical data. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 851.			
<b>8801</b>	<b>PhD Proseminar</b>	<b>G</b>	<b>1</b>
Orientation for new PhD students in sociology. Prereq: Doct standing in Sociol. Not open to students with credit for 801. This course is progress graded (S/U).			
<b>8802</b>	<b>Seminar for Graduate Interdisciplinary Specialization in Demography</b>	<b>G</b>	<b>3</b>
Core required course for students enrolled in the Graduate Interdisciplinary Specialization in Demography (GISD). Presents an introduction to demography (the study of populations) and population health. Prereq: Grad standing, or permission of instructor with approval by Graduate School for undergraduate credit. Repeatable up to a maximum of 12 cr hrs. Cross-listed in PubHlth.			
<b>8999</b>	<b>Research For Dissertation</b>	<b>G</b>	<b>3 - 16</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## Somali

<b>1101.01</b>	<b>Elementary Somali I</b>	<b>U</b>	<b>4</b>
Development of oral proficiency in Somali through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers of the language through regular course enrollment. Prereq: Not open to students with credit for 1101.02. This course is available for EM credit. GE for lang course.			
<b>1101.02</b>	<b>Elementary Somali I (Online)</b>	<b>U</b>	<b>4</b>
Development of oral proficiency in Somali through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers of the language through regular course enrollment. Prereq: Not open to students with credit for 1101 or 1101.01. This course is available for EM credit. GE for lang course.			
<b>1102.01</b>	<b>Elementary Somali II</b>	<b>U</b>	<b>4</b>
Continuation of 1101; further work on developing oral proficiency in Somali through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers through regular course enrollment or EM credit. Prereq: 1101, 1101.01, or 1101.02, or permission of instructor. Not open to students with credit for 1102.02. This course is available for EM credit. GE for lang course.			
<b>1102.02</b>	<b>Elementary Somali II (Online)</b>	<b>U</b>	<b>4</b>
Further develop oral, listening, reading, and written proficiencies in elementary conversational Somali using a competency-based approach. Lexicon control will be developed to a further range of nominal, verbal, and attributive and miscellaneous items. Students are encouraged to practice what they have learned from the course materials, to do and complete all activities and exercises. Prereq: 1101, 1101.01, or 1101.02, or permission of instructor. Not open to students with credit for 1102 or 1102.01. This course is available for EM credit. GE for lang course.			
<b>1103</b>	<b>Elementary Somali III</b>	<b>U</b>	<b>4</b>
Continuation of 1102; further work on developing oral proficiency in Somali through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers through regular course enrollment or EM credit. Prereq: 1102. Not open to students with credit for 101. This course is available for EM credit. GE for lang course.			

**2201 Intermediate Somali I** U 3  
Students gain enhanced proficiency in the speaking, reading, listening, and writing of the Somali language in a meaningful communicative context.  
Prereq: 1103. This course is available for EM credit.

**2241 Intermediate Somali II** U 3  
Students develop skills in the ability to understand other cultures and patterns of thought and to communicate across culture, cultural ideologies, and national boundaries.  
Prereq: 2201. This course is available for EM credit.

## South Asia Studies

**2220 Introduction to South Asia Studies** U 3  
A multi-disciplinary introduction to South Asia's geographical, political, cultural, and religious contexts and connections.  
Prereq: English 1110 or equiv. Not open to students with credit for CompStd 2220 or NELC 2220. GE culture and ideas and diversity global studies course. Cross-listed in CompStd.

**3620 Everyday Life in South Asia** U 3  
An examination of everyday life as experienced by members of the culturally diverse population of South Asia.  
Prereq: English 1110. Not open to students with credit for NELC 3620 or CompStd 3620. GE cultures and ideas course. Cross-listed in CompStd.

**3625 Understanding Bollywood, Knowing India: Hindi Cinema Since 1960** U 3  
Explores life in India from the lens of Hindi language cinema. Course engages with social class, gender, sexuality, Indian diaspora in the West, family structure, marriage, politics, caste, language (special focus on multilingualism in India), religion, and globalization, and how these relate to lived experiences of people in Indian society. Not for Film Studies credit.  
Prereq: Not open to students with credit for NELC 3625, 3625.01, or 3625.02. GE cultures and ideas and diversity global studies course.

**3630S South Asian Identities in the United States: Assimilation and Enculturation** U 3  
The course aims to introduce students to diversity of identities within the immigrant South Asian community in the United States. Students read about how people define, interpret, and understand identity. This is a service learning course and students spend significant time getting to know the range of experiences of South Asians in Central Ohio.  
GE cultures and ideas and diversity soc div in the US and service learning course.

**5241 Interdisciplinary Approaches to South Asian Studies** U G 3  
A connection of the disparate threads of the geographic and cultural entity of South Asia, offering an overview and interdisciplinary perspective on the factors that affect everyday life in the region.  
Prereq: English 1110. Not open to students with credit for NELC 5241.

## Spanish

**1101 Spanish I** U 4  
Development of listening, reading, speaking, and writing skills in cultural contexts. Not open to native speakers of this language through regular course enrollment or EM credit or to students with 3 or more years of high school Spanish. Students with 1+ years of high school Spanish must take the MultiCAT placement exam.  
Prereq: Not open to students with credit for 1101.01, 1102, 1102.01, 1103, 1103.01, 1113, 1155, or equiv. courses. This course is available for EM credit. GE for lang course.

**1102 Spanish II** U 4  
Further development of listening, reading, speaking, and writing skills in cultural contexts. Both classroom-based and 100% online sections available each semester. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1101 or 1101.01. Not open to students with credit for 1102.01, 1103.01, 1103.51, 1155, or equiv. courses. This course is available for EM credit. GE for lang course.

**1103 Spanish III** U 4  
Continuing development of listening, reading, speaking, and writing skills in cultural contexts. Both classroom-based and 100% online sections available each semester. A grade of C- or above is required to continue to 2202. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1102 or 1155 or equiv. Not open to students with credit for 1103.01, 1103.51, 2202.01, or 2202.51. This course is available for EM credit. GE for lang course.

**1113 Intensive Spanish III for Heritage Learners** U 4  
This course builds on Heritage learners' prior knowledge and skills of spoken and written Spanish, expanding on their ability to communicate in a variety of contexts. It employs a multifaceted approach that foment the development of the four skills (listening, speaking, reading, and writing). This course requires consistent attendance, pre-class preparation, and active in-class participation. Course is not open to second language learners of Spanish (SLL).  
Prereq: 1102 or 1155. Not open to students with credit for 1103. GE for lang course.

**1155 Intensive Spanish for Review** U 4  
Intensive beginning Spanish; emphasis on development of proficiency in listening, speaking, reading and writing in cultural contexts. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with less than 3 years of high school Spanish.

Prereq: By placement exam only. Not open to students with credit for 1101.01, 1102.01, 1103.01, 1103.51, 101.01, 102.66, 102.01, 103.66, 103.01, 104, or 111. This course is available for EM credit. GE for lang course. FL Admis Cond course.

**2150 Culture and Literature of Spain** U 3  
Introduction to the principal developments of the culture of Spain through literature, art, music, film, and folklore.  
Prereq: Not open to students with credit for 150. GE cultures and ideas course. GE diversity global studies course.

**2151 Latin American Culture and Literature** U 3  
Introduction to the culture of Spanish America and Brazil through literature, art, music, film, and folklore.  
Prereq: Not open to students with credit for 151. GE cultures and ideas and diversity global studies course.

**2193 Individual Studies** U 1 - 9  
Individual studies.  
Prereq: Written permission of department and additional paperwork required. Repeatable to a maximum of 60 credits or 60 completions. This course is graded S/U.

**2194 Group Studies** U 1 - 9  
Group studies.  
Prereq: Written permission of department is required. Repeatable. This course is graded S/U.

**2202 Spanish IV** U 3  
Ongoing development of listening, reading, speaking, and writing skills and knowledge of Hispanic cultures. Taught in Spanish. Both classroom-based and 100% online sections available each semester. A grade of C- or above is required to move on to Spanish 3000-level. Not open to native speakers of this language through regular course enrollment or EM credit.  
Prereq: 1103, or equiv. Not open to students with credit for 2202.01 or 2202.51.

**2208.22 Andean Music Ensemble** U ½ - 1  
Learning to playing and performing music from Bolivia, Peru, Ecuador, Chile, Colombia and Argentina. The course explores various musical genres within the Andean region. Students study techniques and methods for playing Andean instruments and learn to sing in Spanish, Quechua and Aymara.  
Repeatable to a maximum of 10 cr hrs or 10 completions. Cross-listed in Music.

**2213 Spanish IV for Heritage Speakers** U 3  
This course identifies & expands on Spanish heritage students' diverse identities & bilingual range through grammar review, vocabulary building, spelling and punctuation, & the development of composition skills. Listening, speaking, reading, & writing are emphasized through readings, written essays, & oral presentations. A grade of C- or above is required to move on to Spanish 3000-level. Not open to native, non-native, or non-heritage speakers of this language through regular course enrollment or EM credit.  
Prereq: 1103.01 or equiv., or permission of instructor. Not open to students with credit for 2202.01 or 2202.51 or equiv. This course is available for EM credit.

**2242 Introduction to Latino Studies** U 3  
Introduction to the cultures, experiences, histories and definitions of Latino peoples in the United States; taught in English.  
Prereq: English 1110 (110) or equiv. Not open to students with credit for 242 or CompStd 2322 (242). GE cultures and ideas and diversity soc div in the US course. Cross-listed in CompStd 2322.

**2302 Spanish Conversation** U 3  
Intensive practice in conversation on selected topics. Only available through transfer credit or study abroad.  
Prereq: 1103.01 (103.01 & 104, or 111), or 1155 (103.66), or 2200H (104H), or equivalent with a grade of C- or higher. Repeatable to a maximum of 9 cr hrs.

**2320 Don Quixote in Translation** U 3  
Intro to Cervantes's masterpiece, Don Quixote. Students explore the novel through critical reading, writing, and class discussion. The course surveys the most salient features of Baroque Spanish art, and introduces major themes and narrative techniques included in the novel. An informed reading of DQ fosters the awareness of homologous artistic features and social issues in contemporary society.  
GE lit and diversity global studies course.

**2322 Spanish Society and the Arts** U 3  
Introduction to Spanish art and its relationship to society, from Goya to Toral: a visual approach to culture.  
Prereq: Not open to students with credit for 322. GE VPA and diversity global studies course.

**2330 Reinventing America** U 3  
Introduction to visual and verbal representation of Latin American multi-ethnic cultures through literature and visual arts; emphasis on construction of American identities and nations.  
Prereq: Not open to students with credit for 330. GE VPA and diversity global studies course.

## 428 Spanish

<b>2332</b>	<b>Introduction to Andean and Amazonian Cultures</b>	<b>U</b>	<b>3</b>
Historical formation of contemporary societies in the Andean and Amazonian regions, including their ethnic, social, and cultural features; taught in English. Prereq: Not open to students with credit for 332. GE cultures and ideas and diversity global studies course.			
<b>2380</b>	<b>Introduction to Latin American Film</b>	<b>U</b>	<b>3</b>
Introduction to Latin American film traditions; analysis of genres, filmmakers, and alternate aesthetics; focus on relation of film to social, political, and economic processes. Prereq: Not open to students with credit for 380. GE VPA and diversity global studies course.			
<b>2389</b>	<b>Spanish in the US: Language as Social Action</b>	<b>U</b>	<b>3</b>
Spanish in the US teaches students to understand and analyze discourses surrounding language and ethnicity in the media today. We focus on connecting theoretical tools to social patterns, with a strong emphasis on current media and culture. GE soc sci indivs and groups and diversity soc div in the US course.			
<b>2504</b>	<b>Language, Culture &amp; Communication in Latino Health</b>	<b>U</b>	<b>3</b>
Examines how language, culture and communication shape the healthcare experiences of Latinos in the US. Considers the individual and social factors contributing to health inequalities and key theories and techniques for developing health communication interventions. Team-taught with a faculty member in the School of Communication. Prereq: Not open to students with credit for Comm 2704. GE diversity soc div in the US course. Cross-listed in Comm 2704.			
<b>2506</b>	<b>Latin American Culture in a Business Context</b>	<b>U</b>	<b>3</b>
Examination of cultural differences and similarities between the U.S. and Latin America to understand the effects of conducting business with competent cultural understanding. Taught in English. Course applies to the Spanish Minor for Business.			
<b>2510</b>	<b>Mexican Studies</b>	<b>U</b>	<b>2</b>
Interdisciplinary study of different issues and processes in Mexican culture, history, and society. Prereq: Not open to students with credit for 510. Priority given to Scholars program students.			
<b>2520</b>	<b>Latin American Literature (in Translation): Fictions and Realities</b>	<b>U</b>	<b>3</b>
Critical examination of modern Latin American literature (in English translation), paying close attention to its own literary and cultural traditions. Taught in English. Credit does not apply toward a major or minor in Spanish. Prereq: Not open to students with credit for 520. GE lit and diversity global studies course.			
<b>2797</b>	<b>Topics in Foreign Study</b>	<b>U</b>	<b>1 - 9</b>
Credit from study abroad for courses not offered by department. Not applicable to Spanish Major or Minor. Prereq: Permission of departmental study abroad advisor. Repeatable.			
<b>2798.11</b>	<b>Bolivia: Cultures and Identities</b>	<b>U</b>	<b>3</b>
This interdisciplinary course introduces students to the History, Politics, Cultures, and Identities of Bolivia. It explores its main geographical regions; the heritage and traditions of its peoples; and the different political and cultural currents within the country and its different regions. Students will be encouraged to think critically about Bolivia, the U.S. and different global forces. Prereq: 4516 or permission of instructor. GE education abroad course.			
<b>2798.12</b>	<b>Globalization in the Mayan Country. History, Culture, Tourism, and the Environment in the Yucatan</b>	<b>U</b>	<b>3</b>
The Yucatan offers a unique scenario in the Americas in which relevant issues of socio-economic development; preservation of archeological or historical sites; protection of the environment; reinvigoration of Indigenous culture, & emergence of alternative models of tourism can be studied altogether. The program will offer a comparative framework for a diversity of academic projects or interests. GE education abroad course.			
<b>2798.30</b>	<b>Madrid in the World, the World in Madrid: The Spanish Capital as a Global City, Past and Present</b>	<b>U</b>	<b>3</b>
This interdisciplinary Global May course offered with the Office of International Affairs (OIA) introduces students to the multicultural and global history of the city of Madrid, Spain through readings and films, site visits, and lectures by local scholars and residents. Enrollment in course contingent on acceptance to the program through OIA. GE education abroad course.			
<b>2798.80</b>	<b>Latin America Study Tour</b>	<b>U</b>	<b>1</b>
This short study tour offers students the opportunity to apply and expand on what they have learned in co-requisite coursework about the language, history & culture of Latin American through guided tours and outdoor activities. Faculty-led study abroad program offered through Newark campus only. Concur: 2151 or 1103.01; or permission of instructor. Repeatable to a maximum of 2 or hrs.			
<b>3401</b>	<b>Advanced Grammar</b>	<b>U</b>	<b>3</b>
In-depth examination of difficult points of Spanish grammar; emphasis on comprehension of key grammatical concepts in the language. Prereq: A grade of C- or above in 2202 or 2213. Not open to students with credit for 3401H.			
<b>3403</b>	<b>Intermediate Spanish Composition</b>	<b>U</b>	<b>3</b>
Spanish prose forms and practice in writing descriptive, narrative, and expository compositions. Prereq: A grade of C- or above in 2202 or 2213. May be taken concurrently with 3401, 3401H, and/or 3404. Not open to students with credit for 3413, 4603, or 4613.			

<b>3403H</b>	<b>Intermediate Spanish Composition</b>	<b>U</b>	<b>3</b>
Students work toward a final portfolio featuring the following genres: literary essay, self-portrait, argumentative essay, interview feature article, & short story. During the short-story portion, students collaborate with Spanish-speaking children in Columbus City Schools as part of the literacy outreach initiative, which culminates in publishing bilingual storybooks in ?Que pasa? OHIO STATE. Prereq: Honors standing, a grade of C- or above in 2202 or 2213, and GPA 3.4 or above. May be taken concurrently with 3401 and/or 3404. Not open to students with credit for 3403, 3413, 4603, or 4613.			
<b>3404</b>	<b>Spanish Phonetics</b>	<b>U</b>	<b>3</b>
The fundamental principles of phonetic analysis are introduced in a simple and concise manner to show how Spanish sounds are produced, how they fall into patterns, and how they change in different environments. Major attention is devoted to practice with corrective exercises, introductory training in phonetic transcription and, to a lesser extent, the problems of teaching pronunciation. Prereq: A grade of C- or above in 2202 or 2213. May be taken concurrently with 3401, 3403, and/or 3403H.			
<b>3406</b>	<b>Intermediate Business Spanish</b>	<b>U</b>	<b>3</b>
An introduction to business Spanish with emphasis on business terminology, commercial transactions, and international procedures. Prereq: 3403 (403), or 3403H (403H) with a grade of C- or higher. Not open to students with credit for 406. FL Admis Cond course.			
<b>3413</b>	<b>Spanish for Heritage Speakers</b>	<b>U</b>	<b>3</b>
Covers, reviews and practices grammatical structure through language, literature, and culture of the Hispanic world, as well as incorporate the experiences of heritage speakers in the United States. Students will produce writing in various forms & genres, including literary responses, expository essays, & short stories (narrative). Prereq: A grade of C- or above in 2202 or 2213. Prereq or concur: 3401, 3401H, or 3404. Not open to students with credit for 3403 or 3403H.			
<b>3450</b>	<b>Introduction to the Study of Literature and Culture in Spanish</b>	<b>U</b>	<b>3</b>
Required course for Spanish majors and minors. An introduction to literary and cultural analysis of texts in Spanish. This course presents strategies for reading and analyzing literary and cultural texts from various Spanish speaking countries to prepare students for more advanced courses in the Spanish program. Prereq: A grade of C- or above in 3403, 3413, 4603, or 4613. Not open to students with credit for 3450H.			
<b>3450H</b>	<b>Introduction to the Study of Literature and Culture in Spanish</b>	<b>U</b>	<b>3</b>
Required course for Honors Spanish majors and minors. An introduction to literary and cultural analysis of texts in Spanish. This course presents strategies for reading and analyzing literary and cultural texts from various Spanish speaking countries to prepare students for more advanced courses in the Spanish program. Prereq: Honors standing; and a grade of C- or above in 3403, 3413, 4603, or 4613; and GPA 3.4 or above. Not open to students with credit for 3450.			
<b>3570</b>	<b>CLLC Radio</b>	<b>U</b>	<b>3</b>
Student partners prepare 3 target language broadcasts, each 1 hour in length. Broadcasts stream live over the Internet, then become podcast for public use. Student "DJs" conduct target language research on radio broadcast history and at least 15 thematic topics and related music that interests them. Students choose their music and content with approval and guidelines, then produce scripts. Prereq: Permission of instructor.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 9</b>
Individual studies. Prereq: A grade of C- or above in 3450 (450). Repeatable. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 9</b>
Group studies. Prereq: A grade of C- or above in 3450 (450), and permission of instructor. Repeatable. This course is graded S/U. FL Admis Cond course.			
<b>4430</b>	<b>Introduction to Spanish Linguistics</b>	<b>U</b>	<b>3</b>
Introduction to the analysis of Spanish from the perspective of modern linguistic theory. Prereq: A grade of C- or above in 3401 (401), or 3401H (401H) and 3404 (404). Not open to students with credit for 4534 (604), 4534H (604H), 4430H (530H), or 430. FL Admis Cond course.			
<b>4430H</b>	<b>Honors Introduction to Spanish Linguistics</b>	<b>U</b>	<b>3</b>
Introduction to the analysis of Spanish from the perspective of modern linguistic theory. Prereq: Honors standing, and a grade of C- or above in 3401 (401), or 3401H (401H) and 3404 (404), and GPA 3.4 or above. Not open to students with credit for 4534, 430, or 530H. FL Admis Cond course.			
<b>4501.51</b>	<b>Advanced Spanish for the Professions: STEM</b>	<b>U</b>	<b>3</b>
Provides students in STEM disciplines with background about their majors in Spanish-speaking countries; teaches culturally and linguistically appropriate presentational skills. Special project required. Prereq: Permission of department. Repeatable to a maximum of 9 or hrs.			

<b>4515</b>	<b>Andean Art, Culture, and Society</b>	<b>U</b>	<b>3</b>
Representations of cultural, social, and literary identities in the Andean regions in early and modern societies' daily life as embodied in maps, narratives, art, photography, autobiographical and literary texts. Taught in English.			
<b>4516</b>	<b>The Formation of Bolivian National Cultures</b>	<b>U</b>	<b>3</b>
Overview of Bolivian literatures and cultures, and how they reflect the country's identities as well as its changing social, political, and cultural realities in the process of national formation. Taught in English.			
<b>4534</b>	<b>Spanish Phonology</b>	<b>U</b>	<b>3</b>
Analysis of the phonological structure of Spanish and a comparison with English; practical problems of teaching pronunciation. Embedded Honors section available by permission of instructor. Prereq: A grade of C- or above in 4430 or 4430H.			
<b>4534E</b>	<b>Spanish Phonology</b>	<b>U</b>	<b>3</b>
Analysis of the phonological structure of Spanish and a comparison with English; practical problems of teaching pronunciation. Embedded Honors. Prereq: Honors standing, and a grade of C- or above in 4430 or 4430H, and GPA 3.4 or above.			
<b>4536</b>	<b>Language Change in Spanish</b>	<b>U</b>	<b>3</b>
Historical development of the Spanish language, including details of phonological, morphosyntactic, and semantic changes; external history; and changes currently in progress. Prereq: A grade of C- or above in 4430 (430) or 4430H (530H). Not open to students with credit for 536. FL Admis Cond course.			
<b>4537</b>	<b>Spanish Psycholinguistics</b>	<b>U</b>	<b>3</b>
Overview of child language acquisition, second language acquisition and child and adult language disorders in Spanish-speaking populations. Prereq: A grade of C- or above in 4430 (430) or 4430H (530H). Not open to students with credit for 537. FL Admis Cond course.			
<b>4538</b>	<b>Language Variation in Spanish</b>	<b>U</b>	<b>3</b>
Survey of linguistic variation across the Spanish-speaking world, including geographical and social factors. Prereq: A grade of C- or above in 4430 (430) or 4430H (530H). Not open to students with credit for 538. FL Admis Cond course.			
<b>4551</b>	<b>Spanish Golden Age Literature</b>	<b>U</b>	<b>3</b>
Introductory critical study of major literary works from the 16th and 17th centuries in Spain. Prereq: A grade of C- or above in 3450 (450). Not open to students with credit for 551, 551H, or 551E. FL Admis Cond course.			
<b>4551E</b>	<b>Spanish Golden Age Literature</b>	<b>U</b>	<b>3</b>
Introductory critical study of major literary works from the 16th and 17th centuries in Spain. Prereq: Honors standing; and a grade of C- or above in 3450H (450H); and GPA 3.4 or above. Not open to students with credit for 551, 551H, or 551E. FL Admis Cond course.			
<b>4552</b>	<b>Modern Spanish Literature</b>	<b>U</b>	<b>3</b>
Introductory critical study of major literary works from the 18th century to the present in Spain. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 552 or 552H. FL Admis Cond course.			
<b>4552H</b>	<b>Modern Spanish Literature</b>	<b>U</b>	<b>3</b>
Introductory critical study of major literary works from the 19th century to the present in Spain. Prereq: Honors standing; and a grade of C- or above in 3450H (450H); and GPA 3.4 or above. Not open to students with credit for 552 or 552H. FL Admis Cond course.			
<b>4555</b>	<b>Indigenous, Colonial, &amp; National Literatures and Cultures of Spanish America</b>	<b>U</b>	<b>3</b>
Introductory critical study of issues and processes in the formation of indigenous, colonial, and national expression through 19th century regional discourses. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 555. FL Admis Cond course.			
<b>4555E</b>	<b>Indigenous, Colonial &amp; National Literatures and Cultures of Spanish America</b>	<b>U</b>	<b>3</b>
Introductory critical study of issues and processes in the formation of indigenous, colonial, and national expression through 19th century regional discourses. Prereq: Honors standing; and a grade of C- or above in 3450H; and GPA 3.4 or above. Not open to students with credit for 555E. FL Admis Cond course.			
<b>4556</b>	<b>Modern Spanish American Literature</b>	<b>U</b>	<b>3</b>
Introductory critical study of issues and processes in Spanish American writing from Modernism through the present. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 556. FL Admis Cond course.			
<b>4557.10</b>	<b>Introduction to Latino Literature in the U.S.</b>	<b>U</b>	<b>3</b>
Introductory critical study of authors, topics, and movements in Latino literature from the late 19th century to the present. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 557. FL Admis Cond course.			

<b>4557.20</b>	<b>Introduction to Other Latino Literature in the U.S.</b>	<b>U</b>	<b>3</b>
Study of works by "other Latino" writers, that is, authors from less represented groups within the larger Latino population in the U.S. The "other Latino" writers are part of the new migratory flows between the U.S. and Latin America. Their literary production complements the Latino experience represented by Chicano, Puerto-Rican, and Cuban-American authors. Prereq: 3450 (450) or 3450H (450H).			
<b>4560</b>	<b>Introduction to Spanish American Culture</b>	<b>U</b>	<b>3</b>
Major elements in the culture of the peoples of Spanish America. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 560 or 560H. FL Admis Cond course.			
<b>4560H</b>	<b>Introduction to Spanish American Culture</b>	<b>U</b>	<b>3</b>
Major elements in the culture of the peoples of Spanish America. Prereq: Honors standing; and a grade of C- or above in 3450H; and GPA 3.4 or above. Not open to students with credit for 560 or 560H. FL Admis Cond course.			
<b>4561</b>	<b>Introduction to the Culture of Spain</b>	<b>U</b>	<b>3</b>
Major developments in the culture of Spain. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 561 or 561H. FL Admis Cond course.			
<b>4561H</b>	<b>Introduction to the Culture of Spain</b>	<b>U</b>	<b>3</b>
Major developments in the culture of Spain. Prereq: Honors standing; and a grade of C- or above in 3450H; and GPA 3.4 or above. Not open to students with credit for 561 or 561H. FL Admis Cond course.			
<b>4564</b>	<b>Spanish Culture During Francoism</b>	<b>U</b>	<b>3</b>
Panoramic view of the culture of Spain during the dictatorship of Franco. Use of literary and filmic productions of that period as representations of the historical, social, political & economic experiences Spain lived during those years. Prereq: A grade of C- or above in 3450 or 3450H.			
<b>4565H</b>	<b>Latin American Indigenous Literatures and Cultures</b>	<b>U</b>	<b>3</b>
Introduction to continuities and transformations that link Latin American colonial indigenous texts with contemporary cultural expression. Prereq: Honors standing; and a grade of C- or above in 3450H; and GPA 3.4 or above. Not open to students with credit for 565H. FL Admis Cond course.			
<b>4567</b>	<b>Spanish Mosaic: Catalonia, Basque Country, Galicia and Andalusia</b>	<b>U</b>	<b>3</b>
Explores the fragmentation and renegotiation of Spanish cultural and political identity in tension with its peripheral "nations": Catalonia, Basque Country, Galicia, Andalusia. Prereq: A grade of C- or above in 3450 or 3450H. Not open to students with credit for 4567H.			
<b>4567H</b>	<b>Spanish Mosaic: Catalonia, Basque Country, Galicia and Andalusia</b>	<b>U</b>	<b>3</b>
Explores the fragmentation and renegotiation of Spanish cultural and political identity in tension with its peripheral "nations": Catalonia, Basque Country, Galicia, Andalusia. Prereq: Honors standing; and a grade of C- or above in 3450H; and GPA 3.4 or above. Not open to students with credit for 4567.			
<b>4568</b>	<b>Catalan Cultures</b>	<b>U</b>	<b>3</b>
Critical analysis of the Catalan political history as it relates to its social and cultural history. We will address the ideological, linguistic, and political difficulties of defining Catalan cultures as separate from other cultures of other autonomous communities in the Iberian Peninsula. The course includes discussions on the current political debate surrounding Catalonia's independence. Prereq: 3450 (450) or 3450H (450H).			
<b>4570</b>	<b>Latin Soundscapes: Musical Cultures of Latin America</b>	<b>U</b>	<b>3</b>
Since colonial times, the Latin American region has produced a wealth of musical genres, styles, hybrids, & fusions that allows for exploration of relevant social, cultural, economic, and political issues. This course surveys the richness, diversity, & representation of Latin American music through selection of musical, literary, filmic, & historical texts. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H).			
<b>4580</b>	<b>Latin American Film</b>	<b>U</b>	<b>3</b>
Study of Latin American film; special attention is paid to the relationship between film and the society in which it is produced. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 580. FL Admis Cond course.			
<b>4581</b>	<b>Spanish Film</b>	<b>U</b>	<b>3</b>
Study of Spanish film; special attention is paid to the relationship between film and the society in which it is produced. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 581. FL Admis Cond course.			
<b>4582</b>	<b>Latinx Cinema: Filmmaking, Production &amp; Consumption</b>	<b>U</b>	<b>3</b>
Explores how films by and about Latinxs respond to the U.S. Latinx experience. Analyzes how representational strategies (in terms of race, sexuality, ethnicity, gender, and class) and the deployment of formal devices (such as narrative structure, lighting, cinematography, sound, editing, and mise-en-scene) give various shapes to Latinx experiences and identities. Prereq: Second-level writing course, or permission of instructor.			

## 430 Spanish

<b>4590H</b>	<b>Interdisciplinary Protocols: Identity and National Formation in Latin America: Perspectives from Lit</b>	<b>U</b>	<b>3</b>
Examines the intersections between history and literature, and exposes students to core discussions in contemporary historical and cultural scholarship. Prereq: Honors standing, and a grade of C- or above in 3450H, and GPA 3.4 or above. Not open to students with credit for 590H. FL Admis Cond course.			
<b>4595.01</b>	<b>Special Topics in Foreign Study</b>	<b>U</b>	<b>1 - 9</b>
Credit from study abroad for major level courses in Hispanic Linguistics concentration not offered by department but eligible for Spanish major core. Used only to convert 5797 (697) credit to more appropriate content level. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H), and permission of departmental study abroad advisor. Repeatable.			
<b>4595.02</b>	<b>Special Topics in Foreign Study</b>	<b>U</b>	<b>1 - 9</b>
Credit from study abroad for major level courses in Iberian Literatures & Cultures concentration not offered by department but eligible for Spanish major core. Used only to convert 5697 (697) credit to more appropriate content level. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H), and permission of departmental study abroad advisor. Repeatable.			
<b>4595.03</b>	<b>Special Topics in Foreign Study</b>	<b>U</b>	<b>1 - 9</b>
Credit from study abroad for major level courses in Latin America Literatures and Cultures concentration not offered by department but eligible for Spanish major core. Arranged only with permission of departmental study abroad advisor. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Used only to convert 5797 (697) credit to more appropriate content level. Repeatable to a maximum of 60 cr hrs.			
<b>4603</b>	<b>Advanced Spanish Composition</b>	<b>U</b>	<b>3</b>
Analysis of different prose styles and practice in writing fluent Spanish compositions. Prereq: A grade of C- or above in 3450 (450) or 3450H (450H). Not open to students with credit for 4613 (613). FL Admis Cond course.			
<b>4606</b>	<b>Advanced Business Spanish</b>	<b>U</b>	<b>3</b>
An in-depth study of the Hispanic economic, social, and cultural environment as it relates to business. Prereq: 3403 (403) or 3403H (403H), or permission of instructor. Not open to students with credit for 606. FL Admis Cond course.			
<b>4610</b>	<b>Contrastive Structures of Spanish and English</b>	<b>U</b>	<b>3</b>
Phonetics, phonemics, morphology, and syntax of Spanish contrasted with English. Prereq: A grade of C- or above in 4430 (430) or 4430H (530H). Not open to students with credit for 610. FL Admis Cond course.			
<b>4689S</b>	<b>Translation and Interpreting in the Latino Community</b>	<b>U</b>	<b>3</b>
This course introduces students to foundational concepts in translation and interpretation in community contexts among Latinos in the US. The course analyzes the theoretical, ethical, and sociological dimensions of community translation and interpreting. Prereq: 4430, or permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in Spanish</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research or directed experience; non-thesis. Prereq: A grade of C- or above in 3450 (450). Repeatable. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 9</b>
Honors research. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.			
<b>4999</b>	<b>Research for Thesis</b>	<b>U</b>	<b>1 - 9</b>
Undergraduate research for Thesis. Prereq: Permission of instructor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 9</b>
An individual program of research culminating in an Honors thesis and oral defense. Prereq: Honors standing; and a grade of C- or above in 3450H (450H); and GPA 3.4 or above. Repeatable. This course is graded S/U. FL Admis Cond course.			
<b>5201</b>	<b>Spanish in the Health Professions</b>	<b>U G</b>	<b>3</b>
Introduction to Spanish discourse about health and wellness within the cultural contexts of populations in the US and Latin America. Highlights the complex relationships between language, culture, and power in discourse on health and wellness. Prereq: 3403, or Grad standing and permission of instructor.			
<b>5202</b>	<b>Spanish in the Health Professions II</b>	<b>U G</b>	<b>3</b>
This course introduces students to the practice of interviewing for health and human services in Spanish. The course analyzes the theoretical, ethical, and sociological dimensions of medical and motivational interviewing in the context of the Spanish-speaking population in the United States. Prereq: 5201, or permission of instructor.			

<b>5389</b>	<b>US Latino Languages and Communities</b>	<b>U G</b>	<b>3</b>
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We discuss the diversity of Latino experiences and the central role of language in the development of a "Latino" identity, as well as its role in local understandings of ethnicity, gender, and social class. Theoretical concepts include language ideologies, identity, and critical approaches to race and ethnicity. Previous coursework in Latino Studies and/or Sociolinguistics is desirable.  
Prereq: 5201 or 4430/H, or equiv, or Grad standing, or permission of instructor.

<b>5461</b>	<b>Latino Urbanism and the Reinvention of the American City</b>	<b>U G</b>	<b>3</b>
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Interdisciplinary course that examines a new trend of urbanism based on the urban experiences of Latinos and the study of this group's social, economic, and cultural impact on cities across the US. Taught in English. Team-taught course cross-listed in Spanish & City and Regional Planning.  
Prereq: Second-level writing course, and Jr or Sr standing; or Grad standing; or permission of instructor. Not open to students with credit for 4461 or CRPlan 4461 or 5461. Cross-listed in CRPlan.

<b>5501.10</b>	<b>AmerIndian Languages &amp; Cultures (Study Abroad)</b>	<b>U G</b>	<b>1 - 9</b>
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AmerIndian languages and cultures (e.g., Guarani, Aymara) offered in study abroad programs. May count toward UG Spanish or Portuguese major/minor by petition. Graduate students must consult with their Program Advisor and complete any documentation required by their program of enrollment. Course may be taught in Target Language, Spanish or English.  
Prereq: Permission of department. Repeatable to a maximum of 9 cr hrs or 4 completions.

<b>5501.20</b>	<b>AmerIndian Languages &amp; Cultures (Domestic)</b>	<b>U G</b>	<b>1 - 9</b>
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Amerindian languages and cultures (e.g., Guarani, Aymara) offered through OSU or another domestic institution. May count toward the UG Spanish or Portuguese major/minor by petition. Graduate students must consult with their Program Advisor and complete any documentation required by their program of enrollment. Course may be taught in Target Language, Spanish or English.  
Prereq: Permission of department. Repeatable to a maximum of 9 cr hrs or 4 completions.

<b>5620</b>	<b>Gender and Power in the Americas</b>	<b>U G</b>	<b>3</b>
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Taught in Spanish, the course focuses on the interpretation of gender and power in hemispheric Latin American and U.S. Latino/a cultural production. The seminar promotes inquiry in the areas of gender and power, performance studies, and the problems and prospects of Latinos as peoples shaped by the legacies of colonial, neoliberal, and patriarchal social orderings.  
Prereq: 3450.

<b>5630</b>	<b>Seminar in Hispanic Linguistics</b>	<b>U G</b>	<b>3</b>
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Intensive study of major topic in Hispanic linguistics. Topics vary: e.g., the Spanish pronominal system, American Spanish dialectology, Spanish orthography. Required for students completing the Hispanic Linguistics track of the Spanish Major.  
Prereq: A grade of C- or above in 4430 or 4430H, plus any two of: 4532, 4534, 4534E, 4536, 4537, 4538, 4595.01, 4610, 4689S, 5389, or Portgse 5611. Repeatable to a maximum of 9 cr hrs.

<b>5630E</b>	<b>Seminar in Hispanic Linguistics - Embedded Honors</b>	<b>U G</b>	<b>3</b>
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Intensive study of major topic in Hispanic linguistics. Topics vary: e.g., the Spanish pronominal system, American Spanish dialectology, Spanish orthography. Fulfills seminar requirement for students completing the Hispanic Linguistics Concentration of the Honors Spanish Major.  
Honors Embedded.  
Prereq: A grade of C- or above in 4430 or 4430H, plus any two of: 4532, 4534, 4534E, 4536, 4537, 4538, 4595.01, 4610, 4689S, 5389, or Portgse 5611. Repeatable to a maximum of 9 cr hrs.

<b>5640</b>	<b>Globalization and Latin America: Multi-disciplinary Approaches</b>	<b>U G</b>	<b>3</b>
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Explores current debates on globalization in Latin America and recent and interrelated transformations in the economies, politics, and cultures of the region.  
Prereq: A grade of C- or above in 3450 (450) or 3450H (450H), or Grad standing. Not open to students that have credit for 640 or IntStds 640. Cross-listed in IntStds.

<b>5650</b>	<b>Seminar in Iberian Literatures and Cultures</b>	<b>U G</b>	<b>3</b>
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Intensive study of a major theme, author, literary, or cultural problem related to the Iberian Peninsula. Required for students completing the Iberian Concentration of the Spanish major.  
Prereq: A grade of C- or above in 3450 or 3450H, plus any two of: 4551, 4551E, 4552, 4552H, 4561, 4561H, 4564, 4567, 4567H, 4568, 4581, or 4595.02. Repeatable to a maximum of 9 cr hrs.

<b>5650E</b>	<b>Seminar in Iberian Literatures and Cultures - Embedded Honors</b>	<b>U G</b>	<b>3</b>
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Intensive study of a major theme, author, literary, or cultural problem related to the Iberian Peninsula. Required for students completing the Iberian Concentration of the Honors Spanish major.  
Prereq: A grade of C- or above in 3450 or 3450H, plus any two of: 4551, 4551E, 4552, 4552H, 4561, 4561H, 4564, 4567, 4567H, 4568, 4581, or 4595.02. Repeatable to a maximum of 9 cr hrs.

<b>5660</b>	<b>Seminar in Latin American Literatures and Cultures</b>	<b>U G</b>	<b>3</b>
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Intensive study of a major theme, author, literary or cultural problem related to Latin America. Required for students completing the Latin American Concentration of the Spanish major.  
Prereq: A grade of C- or above in 3450 or 3450H, plus any two of: 4515, 4516, 4555, 4555E, 4556, 4557.10, 4557.20, 4560, 4560H, 4565H, 4570, 4580, 4582, 4590H, 4595.03, 5461, 5620, or 5640. Repeatable to a maximum of 9 cr hrs.



<b>5660E</b>	<b>Seminar in Latin American Literatures and Cultures</b>	<b>U G</b>	<b>3</b>
Intensive study of a major theme, author, literary or cultural problem related to Latin America. Required for students completing the Latin American Concentration of the Spanish major. Only one course taught in English at the 4000 or 5000-level may count toward the Spanish Major program. Prereq: A grade of C- or above in 3450 or 3450H, plus any two of: 4515, 4516, 4555, 4555E, 4556, 4557.10, 4557.20, 4560, 4560H, 4565H, 4570, 4580, 4582, 4590H, 4595.03, 5461, 5620, or 5640. Repeatable to a maximum of 9 cr hrs.			
<b>5670</b>	<b>Seminar in LatinX Literatures and Cultures</b>	<b>U G</b>	<b>3</b>
Intensive study of a major theme, author, literary, or cultural problem related to LatinX languages, literatures and cultures. Required for students completing the LatinX track of the Spanish major. Prereq: A grade of C- or above in 3450 or 3450H, plus any two of: 4557.10, 4557.20, 4595.01, 4595.03, 4461, 4570, 4582, 4689S, 5201, 5389, 5620; Anthro 3419, 3416; CompStd 3360, 3689, 4804, 4805; English 4578, 4588; HCS 3380; WGSST 4375, 4560, 4404. Repeatable to a maximum of 9 cr hrs.			
<b>5670E</b>	<b>Seminar in LatinX Literatures and Cultures</b>	<b>U G</b>	<b>3</b>
Intensive study of a major theme, author, literary, or cultural problem related to LatinX languages, literatures and cultures. Required for students completing the LatinX track of the Spanish major. Prereq: Honors standing or permission of instructor, and a grade of C- or above in 3450 or 3450H, plus any two of: Spanish 4557.10, 4557.20, 4595.01, 4595.03, 4461, 4570, 4582, 4689S, 5201, 5389, 5620; Anthro 3419, 3416; Comp Studies 3360, 3689, 4804, 4805; English 4578, 4588; HCS 3380; WGSST 4375, 4560, 4404. Repeatable to a maximum of 9 cr hrs.			
<b>5689S</b>	<b>Spanish in Ohio: An Experiential Course</b>	<b>U G</b>	<b>3</b>
Interaction with Hispanic and LatinX community organization representatives, educators and business leaders in Ohio; intensive & extensive practice with Spanish as spoken by native and heritage speakers from the U.S. & abroad. Fulfills the Experiential Component of the Spanish Major. Prereq: 3450 or 3450H.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Not open to students with credit for 697. Repeatable. This course is progress graded.			
<b>6340</b>	<b>Spanish Phonetics for Teachers</b>	<b>G</b>	<b>3</b>
Comprehensive study of the Spanish sound system, as well as preparation for, and practice in, the teaching of pronunciation. The course covers the principles of orthography, articulatory descriptions of sounds, phonetic transcription, phonological analysis, contrasts with English, issues in L2 phonological research, and best practices in the teaching of Spanish pronunciation to English speakers. Prereq: Grad standing.			
<b>6700</b>	<b>Introduction to Literary and Cultural Analysis</b>	<b>G</b>	<b>3</b>
Introduction to literary and cultural theory and methods of analysis; emphasis on the study and articulation of critical concepts. Prereq: Grad standing.			
<b>6705</b>	<b>Introduction to Latino Studies</b>	<b>G</b>	<b>4</b>
Introduces graduate students to the broad themes, concepts, and questions raised in the interdisciplinary field of Latina/Latino studies. Prereq: Grad standing, or permission of instructor and approved petition to the Graduate School. Not open to students with credit for 705, ArtsSci 705, or CompStd 6425 (705). Cross-listed in CompStd 6425.			
<b>7193</b>	<b>MA Exam Preparation</b>	<b>G</b>	<b>1 - 9</b>
Independent study to prepare for an upcoming MA examination. Prereq: Permission of instructor. Repeatable. This course is progress graded (S/U).			
<b>7320</b>	<b>Spanish Syntax and Semantics</b>	<b>G</b>	<b>3</b>
Introduction to structural and semantic characteristics of Spanish in light of recent theoretical frameworks in linguistics. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 732.			
<b>7340</b>	<b>Spanish Phonology and Morphology</b>	<b>G</b>	<b>3</b>
Introduction to phonological and morphological characteristics of Spanish in light of recent theoretical frameworks in linguistics. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 734.			
<b>7360</b>	<b>History of the Spanish Language</b>	<b>G</b>	<b>3</b>
Basic concepts of historical linguistics: the major factors of change in the history of the Spanish language from Latin to the present. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 736.			
<b>7380</b>	<b>Spanish Sociolinguistics</b>	<b>G</b>	<b>3</b>
Introduction to the analysis of linguistic and social factors which contribute to variation in modern Spanish. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 738.			

<b>7410</b>	<b>Mapping Medieval and Renaissance Iberian Literatures and Cultures</b>	<b>G</b>	<b>3</b>
Study of significant socio-cultural moments, issues, problematics, and concepts in Iberian literatures and cultures from the medieval period to the 18th century. Prereq: Grad standing, or permission of instructor.			
<b>7430</b>	<b>Mapping Modern and Contemporary Iberian Literatures and Cultures</b>	<b>G</b>	<b>3</b>
Study of significant socio-cultural moments, issues, problematics, and concepts in Iberian literatures and cultures from the 18th century to the contemporary period. Prereq: Grad standing, or permission of instructor.			
<b>7470</b>	<b>Mapping Modern and Contemporary Latin American Literatures and Cultures</b>	<b>G</b>	<b>3</b>
Study of significant socio-cultural moments, issues, problematics, and concepts in Latin American literatures and cultures from the late 19th century to the contemporary period. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 760.			
<b>7510</b>	<b>Studies in Medieval Iberia</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in Medieval Iberia. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7520</b>	<b>Studies in Renaissance and Baroque Iberia</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in 16th- and 17th-century Iberian literatures and cultures. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7540</b>	<b>Studies in Contemporary Iberian Literatures and Cultures</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in 20th- and 21st-century Iberian literatures and cultures. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7550</b>	<b>Studies in Indigenous and Colonial Latin American Literatures and Cultures</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in indigenous and colonial Latin American literatures and cultures. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7560</b>	<b>Studies in Independence and 19th-Century Latin American Literatures and Cultures</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in Latin American literatures and cultures of the independence period and the 19th century. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7580</b>	<b>Studies in Contemporary Latin American Literatures and Cultures</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic or problem in contemporary Latin American literatures and cultures. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7595</b>	<b>Comparative Topics in Luso-Hispanic Literature and Culture</b>	<b>G</b>	<b>3</b>
In-depth study of a major topic comparing the literatures and cultures of the Portuguese- and Spanish-speaking worlds. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.			
<b>7650</b>	<b>Topics in Latin American Cultures</b>	<b>G</b>	<b>3</b>
Analysis of Latin American culture through the study of selected topics in literature, film, and the arts; topics vary. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
<b>7780.22</b>	<b>Andean Music Ensemble</b>	<b>G</b>	<b>½ - 1</b>
In this course students learn to play and perform music from Bolivia, Peru, Ecuador, Chile, Colombia and Argentina. The course explores various musical genres within the Andean region. Students study techniques and methods for playing Andean instruments and learn to sing in Spanish, Quechua and Aymara. Repeatable to a maximum of 10 cr hrs or 10 completions. Cross-listed in Music.			
<b>7800</b>	<b>Latin American Film</b>	<b>G</b>	<b>3</b>
Study of Latin American film focusing on historical periods, dominant genres, distinguished directors, and relation of film to larger social, cultural and political dynamics. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 780.			
<b>7801</b>	<b>College Teaching of Spanish and Portuguese</b>	<b>G</b>	<b>3</b>
Methods and techniques for teaching Spanish and Portuguese language at the college level. Three-week intensive workshop prior to beginning of semester followed by a 2-hr seminar during semester. Course does not count towards degree. Prereq: Teaching associate in Spanish and Portuguese, or permission of instructor. Not open to students with credit for 801 or 6801.			
<b>7880</b>	<b>Interdepartmental Studies</b>	<b>G</b>	<b>1 - 3</b>
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 9 cr hrs or 9 completions.			

## 432 Spanish

**8193.01 Individual Studies** G 1 - 9

Independent Study of a focused problem or topic in the various fields of Iberian and Latin American literatures and cultures and Hispanic Linguistics.  
Prereq: Permission of instructor. Repeatable. This course is progress graded (S/U).

**8193.02 PhD Exam Preparation** G 1 - 9

Independent study to prepare for an upcoming PhD examination.  
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

**8194 Group Studies** G 1 - 9

Group study of a focused problem and topic in the various fields of Iberian and Latin American literatures and cultures and Hispanic Linguistics.  
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 18 completions. This course is graded S/U.

**8320 Studies in Synchronic Spanish Syntax, Semantics and Pragmatics** G 3

Investigation of theoretical concepts in syntax, semantics, and pragmatics and how they have been applied to the analysis of the Spanish language.  
Prereq: 7320 (732), or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8330 Studies in Spanish Synchronic Linguistics** G 3

Investigation of selected topics in synchronic Spanish linguistics (formal problems in Spanish phonology, morphology, syntax, semantics, and lexicology). Individual topics not repeatable.  
Prereq: 7320 (732) or 7340 (734) (depending on topic), or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8340 Studies in Synchronic Spanish Phonetics, Phonology and Morphology** G 3

Investigation of theoretical concepts in phonetics, phonology, and morphology and how they have been applied to the analysis of the Spanish language.  
Prereq: 7340 (734), or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8370 Studies in Spanish Psycholinguistics** G 3

Studies in child language acquisition, second language acquisition and child and adult language disorders in Spanish-speaking populations.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8380 Studies in Spanish Sociolinguistics** G 3

Study of selected topics in Spanish sociolinguistics, for example: syntactic variation, discourse analysis.  
Prereq: 7380 (738), or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8390 Seminar in Spanish Linguistics** G 3

Collaborative investigation of specific problems in Spanish linguistics (synchronic and historical, formal, and applied topics). Individual topics not repeatable.  
Prereq: 8330 (833) or 8360 (836), or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8510 Seminar in Medieval Iberia** G 3

Detailed exploration of advanced issues in Medieval Iberia.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8530 Seminar in Modern Iberian Literatures and Cultures** G 3

Detailed exploration of advanced issues in Iberian literatures and cultures of the 18th to 20th centuries.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8540 Seminar in Contemporary Iberian Literatures and Cultures** G 3

Detailed exploration of advanced issues in 20th- and 21st-century Iberian literatures and cultures.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8550 Seminar in Indigenous and Colonial Latin American Literatures and Cultures** G 3

Detailed exploration of advanced issues in indigenous and colonial Latin American literatures and cultures.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8560 Seminar in Independence and 19th-Century Latin American Literatures and Cultures** G 3

Detailed exploration of advanced issues in Latin American literatures and cultures of the independence period and the 19th century.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8570 Seminar in Modern Latin American Literatures and Cultures** G 3

Detailed exploration of advanced issues in Latin American literatures and cultures of the modern period from approximately 1880 to 1950.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8595 Seminar in Comparative Luso-Hispanic Literature and Culture** G 3

Detailed exploration of advanced issues comparing the literatures and cultures of the Portuguese- and Spanish-speaking worlds.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 18 cr hrs.

**8650 Seminar in Latin American Cultures** G 3

Intensive exploration of a cultural period, topic, or problem; topic varies.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8780 Research Methods and Design** G 3

Introduction to research methods and design in Iberian and Latin American literatures and cultures. Required course for Literature and Culture PhD programs.  
Prereq: Grad standing, or permission of instructor. Not open to students with credit for 803.

**8800 Seminar in Literary and Cultural Theory** G 3

Intensive study of special topics in literary and/or cultural theory with attention to their relationship to Iberian and Latin American literatures and cultures.  
Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

**8890 Publication Workshop** G 3

Revision and expansion of a seminar paper for potential publication in an academic journal, based on feedback from instructor and classmates.  
This course is progress graded (S/U).

**8893 Hispanic Linguistics Colloquium** G 1

Forum for presentation of research in Hispanic linguistics; introduction to professional issues in workshop format.  
Repeatable to a maximum of 15 cr hrs. This course is progress graded (S/U).

**8894 Literatures and Cultures Colloquium** G 1

Forum for presentation of research in Iberian and Latin American literatures and cultures; introduction to professional issues in workshop format.  
Repeatable to a maximum of 15 cr hrs. This course is progress graded (S/U).

**8998 Research for Dissertation (Pre-candidacy)** G 1 - 12

Research for dissertation (pre-candidacy).  
Prereq: Pre-candidacy status, and permission of faculty advisor. Repeatable to a maximum of 64 cr hrs or 15 completions. This course is graded S/U.

**8999 Research for Dissertation (Post-candidacy)** G 1 - 12

Research for dissertation (Post-candidacy).  
Prereq: Post-candidacy status, and permission of faculty advisor. Repeatable to a maximum of 59 cr hrs or 16 completions. This course is progress graded (S/U).

## Speech and Hearing Science

**2194 Group Studies** U 1 - 3

Designed to give groups of students an opportunity to pursue special studies not otherwise offered.  
Prereq: Permission of instructor. Not open to students with 5 cr hrs of 294. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**2230 Introduction to Communication and Its Disorders** U 3

Survey of the topics, methodologies, and applications of speech and hearing science in normal and aberrant communication; lectures and readings.  
Prereq: Not open to students with credit for 230.

**3320 Principles of Phonetics** U 3

Provides articulatory and acoustic descriptions of speech sounds and a comparative study of phonetic transcription systems.  
Prereq: Not open to students with credit for 320.

**3330 Language Acquisition** U 3

Introduction to language acquisition in normal children.  
GE soc sci indivs and groups course.

**3330H Language Acquisition** U 3

Introduction to language acquisition in normal children.  
Prereq: Honors standing or permission of instructor. Not open to students with credit for 3330 (330), 330H, or 430. GE soc sci indivs and groups course.

**3340 Introduction to the Art and Science of Sound** U 3

Designed to teach the basic principles of acoustics to undergraduate students in the Arts and Sciences who have had little previous experience with math or biological and physical sciences. The student should gain an appreciation of the concepts underlying the generation, transmission and measurement of sound waves traveling through air.  
Prereq: Not open to students with credit for 340.

**3350 Speech-Language Communication Across the Life Span: Issues and Problems in Our Communities** U 3

Exploration of the development of communication skills throughout the life span and the consequences of communication disorders for individuals, their families, and their communities.  
Prereq: Not open to students with credit for 350. GE soc sci indivs and groups course.

**3360 Observation in Speech-Language Pathology and Audiology** U 3

Observation in appraisal and treatment of communication disorders.  
Prereq: 2230 (230). Not open to students with credit for 360. This course is graded S/U.

## Speech and Hearing Science 433

**3370S Service Learning in Adult Neurogenetics for Speech-Language Pathology** U 2

This course involves advancing students' knowledge of disorders resulting from acquired brain injury in adult populations. Students will gain knowledge related to understanding, developing, and utilizing tools to support communication. Through a mutually beneficial community service activity, students will also gain appreciation on the impact a communication disability has on quality of life.

Prereq: 2230. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**4420 Anatomy, Physiology and Science of Speech** U 3

Anatomy and physiology of the structures involved in speech production and the acoustic characteristics of speech sounds.

Prereq: 3320 (320), or equiv course in Phonetics, and Biology 101, 102, 113, 114, 115H, or 116H. Not open to students with credit for 420.

**4430 Introduction to Language Science and Language Disorders** U 3

Foundational to understanding normal/disordered language development or language altered by neurological disorders is the structure of language and associated cognitive processes. This course will associate the structure of language to principles in the assessment of language/disorders and treatment of language disorders, developmental and acquired, across the life span.

Prereq: 2230 (230) or 3330 (330) or equiv, or permission of instructor.

**4440 Anatomy, Physiology, and Science of Hearing** U 3

The anatomical properties and physiological processes of the system of hearing and balance in humans and the stimulus processing capabilities of the normal auditory system.

Prereq: 3340 (340) or equiv, and Biology 1101 (101), 1102 (102), 1113 (113), or 1114 (114); or permission of instructor. Not open to students with credit for 440.

**4510 Disability Studies in Context** U 3

The history, nature, meaning, and consequences of disability from the differing viewpoints of a range of academic disciplines and professions.

Prereq: Not open to students with credit for 510.

**4520 Introduction to Clinical Methods in Speech-Language Pathology** U 3

Etiology, appraisal, and management of disorders of speech and language in children and adults.

Prereq: 3320, 3330, and 4420, or equiv, or permission of instructor.

**4530 Introduction to Autism** U 3

This course provides an overview of the identification and diagnosis of autism, scientific perspectives on etiology, and the neurobiological underpinnings of autism, as well as treatment components of autism.

**4540 Introduction to Audiology** U 3

The nature, causes, identification, and rehabilitative treatment of persons with hearing disorders.

Prereq: 4440 (440), or equiv. Not open to students with credit for 540.

**4630 Neuroscience of Speech, Language, and Music** U 3

Music and language are integral and universal components of human nature, as proved by their ubiquity across all cultures. This course is designed to offer a general overview of the neuroscience of speech, language, and music, a glimpse of research in this emerging discipline, and a sample of the current and possible applications for the health and well-being of healthy and clinical populations.

**4999 Baccalaureate Research and Thesis** U 2 - 10

A program of directed independent study for the academically strong student with an interest in research and the desire to complete a thesis.

Prereq: GPA 3.4 or above in SphHrng, and Jr or Sr standing, and permission of the instructor. Not open to students with maximum cr hrs in 4999H or 783H. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**4999H Honors Research and Thesis** U 2 - 10

A program of independent study for the student with special aptitudes; individual conferences and reports, leading to the completion of the Honors thesis.

Prereq: SphHrng GPA 3.4 or above, Sr. standing, permission of the instructor and permission of the ASC Honors Committee. Not open to students with 15 qtr cr hrs in 783H. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**5193 Individual Studies** U G 1 - 3

Conference, library, and laboratory work.

Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

**5605 Multicultural Aspects of Communication** U G 3

Examination of normal communicative behavior, including development, and the assessment and management of speech-language-hearing disorders of culturally and linguistically diverse populations.

Prereq: 3330, Ling 3601, or 3602, or equiv, or permission of instructor.

**5714 Introduction to Sign Language** U G 3

Introductory course in manual sign language systems.

Prereq: Not open to students with credit for 714.

**5732 Introduction to Aural Rehabilitation I** U G 3

Assessment and management of communication disorders associated with hearing loss.

Prereq: 4540 (540), or permission of instructor. Not open to students with credit for 734.

**5741 Voice Disorders and Cleft Palate** U G 3

Advanced studies of anatomy and physiology of the vocal tract with clinical emphasis on assessment and treatment of voice disorders, laryngectomy, and cleft lip and/or palate.

Prereq: Grad standing in SphHrng or permission of instructor. Not open to students with credit for 741.

**5760 Neurology of the Speech and Hearing Mechanism** U G 3

Introduction to neuroanatomy and neuroscience for undergraduates in the Speech and Hearing Science major or those planning to apply for graduate school in speech-language pathology or audiology. The course includes discussion of the sensory and motor nervous systems at the cellular and system levels.

Prereq: Biology 1101 (101) or above. Not open to students with credit for 765.

**5785 Research Methods I** U G 3

Introduction to research design and data analysis for the hearing and speech sciences.

Prereq: Grad standing or permission of instructor. Not open to students with credit for 785.

**5860 Augmentative and Alternative Communication for the Multidisciplinary Professional** U G 3

This course is designed to provide students with knowledge of augmentative communication/augmentative & alternative communication (AAC). The course will explore the various types of AAC, the procurement process, funding of AAC, and intervention for people with complex communication needs secondary to a variety of diagnoses.

Prereq: HthRhSc 5100. Not open to students with credit for HthRhSc 5860. Cross-listed in HthRhSc.

**5891 Proseminar in Cognitive Science** U G 2

Provides an in-depth examination of cognitive science from an interdisciplinary perspective.

Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. Cross-listed in CSE, Ling, Philos, and Psych.

**6143 Professional Issues I** G 2

Consideration is given to the audiology scope of practice, health privacy issues, and the role of professional organizations.

Prereq: Requires acceptance in AuD program. First year AuD students only. Not open to students with credit for 643.01. This course is graded S/U.

**6150 The SLPs Role Working with Individuals with Autism** G 3

This course is designed to provide students with knowledge in the area of autism by integrating research results with clinical practice. Implications for assessment and treatment for individuals with autism will be discussed.

Prereq: Grad standing, and coursework in language development, or permission of instructor.

**6170 Clinical and Educational Methods in the Schools** G 2

Models, strategies, methodologies, and curriculum involved in planning, implementing, and evaluating team-based instruction for students with communication, language, and learning disabilities.

Prereq: Grad standing in SphHrng; or permission of instructor. Not open to students with credit for 670.

**6189 Field Experience in the Schools** G 4 - 8

Major practicum experience for students pursuing certification to practice speech/language pathology in schools.

Prereq: Grad standing in SphHrng, and permission of instructor. Repeatable to a maximum of 8 cr hrs or 2 completions. This course is graded S/U.

**6194 Group Studies** G 1 - 2

Designed to give groups of students an opportunity to pursue advanced studies not otherwise offered.

Prereq: Permission of instructor. Repeatable to a maximum of 7 cr hrs or 7 completions. This course is graded S/U.

**6243 Professional Issues II** G 2

Discussion centers on ethical practices and licensure issues in audiology. Issues related to counseling, voluntary credentials, and professional advocacy are considered.

Prereq: Requires acceptance in AuD program. Not open to students with credit for 643.02. This course is graded S/U.

**6705 Audiologic Assessment I** G 3

Detailed treatment of the theoretical and practical aspects of standard audiologic assessment.

Prereq: Not open to students with credit for 705.

**6706 Audiologic Assessment II** G 3

Detailed treatment of the theoretical and practical aspects of the physiologic evaluation of the auditory system using immittance and otoacoustic emissions.

Prereq: 6705 (705). Not open to students with credit for 706.

**6707 Audiologic Assessment III** G 3

Study of the techniques involved in the administration and interpretation of electronystagmography, rotation, and posturography assessments.

Prereq: 6706 (706). Not open to students with credit for 750.

## 434 Speech and Hearing Science

**6708 Audiologic Assessment IV** G 3

Detailed treatment of the theoretical and practical aspects of electrophysiologic measures, including electrocochleography, auditory brainstem responses, middle latency responses, and cognitive potentials.

**6710 Speech Sound Disorders in Children** G 3

Approaches to understanding the nature and clinical management, especially assessment and treatment, of speech sound disorders in children and youth.

Prereq: Grad standing in Speech and Hearing Science, or permission of instructor. Not open to students with credit for 710.

**6725 Language Acquisition and Early Intervention in Language Delay** G 3

Development of language in children with an emphasis on the interaction between the development of language and cognition with implications for delay. The emphasis is on children aged zero to five years.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 725.

**6726 Child Language Disorders: Assessment** G 3

Assessment and treatment of language disorders in preschool and school-aged children; both norm-referenced and criterion-referenced. The emphasis is on school-aged children.

Prereq: 6725 (725). Not open to students with credit for 726.

**6733 Adult Audiologic Rehabilitation** G 3

The impact of hearing loss on social, vocational, and psychological well-being. Treatment options and measures of treatment outcome.

Prereq: Not open to students with credit for 733.

**6735 Hearing Aids I** G 3

The physical and electroacoustic characteristics of hearing aids, including electroacoustic analysis, acoustics of amplification systems, signal processing strategies, and devices used in specialized fittings.

Prereq: 6705 (705). Not open to students with credit for 735.

**6740 Fluency: Theory and Treatment** G 3

Theories, principles, and procedures for the appraisal and treatment of persons with dysfluencies in speech.

Prereq: Grad standing in SphHrng, or permission of instructor. Not open to students with credit for 740.

**6742.01 Clinical Seminar in Speech and Language Disorders I: Fundamentals of Treatment Designs** G 3

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.

Prereq: Grad standing in SphHrng, or permission of instructor. Not open to students with 9 or hrs of 744. This course is graded S/U.

**6742.02 Clinical Methods in Speech Language Disorders: Specialized Topics in Treatment Designs** G 3

Lectures, discussions and labs covering methodology for speech sound disorders and oral and written language.

Prereq: Grad standing in SphHrng, or permission of instructor. This course is graded S/U.

**6742.03 Clinical Methods in Speech and Language Disorders: Advanced Topics** G 1

SHS 6742.03 is a 1 credit hour course to encompass one hour per week of classroom instruction to supplement clinical practicum placements. This seminar is designed for first year SHS graduate clinicians to gain knowledge in clinical methodology, specific to individual populations/disorders; and the policies and procedures used at The Ohio State University Speech-Language-Hearing Clinic.

Prereq: Grad standing in SphHrng, or permission of instructor. This course is graded S/U.

**6751 Clinical Seminar in Speech and Language Disorders I** G 1

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.

This course is graded S/U.

**6752 Clinical Seminar in Speech and Language Disorders II** G 1

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.

This course is graded S/U.

**6753 Clinical Seminar in Speech and Language Disorders III** G 1

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.

Prereq: 6752. This course is graded S/U.

**6754 Clinical Seminar in Speech and Language Disorders IV** G 1

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.

This course is graded S/U.

**6755 Clinical Seminar in Speech and Language Disorders V** G 2

Lectures, discussions and labs covering the fundamentals of treatment design and case management for Speech-Language Disorders.

Prereq: 6754. This course is graded S/U.

**6761 Cognitive Communication Disorders in Adults** G 3

Impairments in communication due to neurologically related changes in cognition. Pertinent topics include traumatic brain injury, dementia and right hemisphere disorder.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 762 or 763.

**6762 Language Disorders in Adults** G 3

Language disorders resulting from neurological pathology in adults.

Prereq: Grad standing, or permission of instructor and approved petition to the Graduate School.

**6763 Motor Speech Disorders** G 3

Speech disorders resulting from neurological pathology in adults.

Prereq: Grad standing, or permission of instructor. Not open to students with credit for 762.

**6764 Evaluation and Treatment of Dysphagia in Adults and Children** G 3

The role of the speech-language pathologist in assessment and treatment of swallowing disorders in children and adults.

Prereq: 5761 or 760 or equiv, and Grad standing; or permission of instructor. Not open to students with credit for 763.

**6766 Acoustics and Instrumentation** G 3

Principles underlying the use of electro-acoustic instrumentation in the speech and hearing sciences.

Prereq: Enrollment in Doctor of Audiology program, or Speech and Hearing Science Grad program; or permission of instructor. Not open to students with credit for 766.

**6770 Topics in Pediatric Medical Speech-Language Pathology** G 2

Introduction to specialty topics related to complex pediatric medical conditions and their relevance to speech-language pathologists in all clinical settings.

Prereq: 6761, 6762, 6763, and 6764.

**6771 Counseling in Communication Disorders** G 2

This course will introduce counseling skills and considerations for individuals and families of individuals with communication disorders across the lifespan.

Prereq: 6761, 6762, 6763, and 6764. This course is graded S/U.

**6775 Anatomy and Physiology of the Auditory System** G 4

The structure, function, and stimulus processing capacities of the ear and central auditory pathways as they relate to performance on tests of auditory function in normal and impaired listeners.

Prereq: Not open to students with credit for 775.

**6786 Statistics in Speech and Hearing Science** G 3

Introduction to descriptive and inferential statistics as they are utilized in speech and hearing science.

**6843 Practicum in Audiology** G 3

Students are placed in local audiology clinics to put into practice skills learned in the classroom.

Prereq: Successful completion of AuD qualifying examination. Repeatable to a maximum of 30 or hrs or 10 completions. This course is graded S/U.

**6844 Practicum in Communication Disorders** G 1 - 2

Practicum with children and adults having speech, language, or hearing problems.

Prereq: Grad standing in Speech and Hearing Science. Repeatable to a maximum of 14 or hrs or 9 completions. This course is graded S/U.

**6850 Advanced Hearing Science** G 4

This course is designed to provide beginning graduate students with an understanding of the measurement of stimuli and responses commonly used in clinical and experimental hearing testing.

Prereq: Grad standing; or permission of instructor, and approved petition to the Graduate School. Not open to students with credit for 6766 or 6858.

**6858 Introduction to Auditory Neuroscience** G 3

Theoretical concepts and psychophysical data relative to hearing and related laboratory experiments.

Prereq: Not open to students with credit for 858 or 5858.

**6860 Augmentative Communication** G 3

This lecture course is designed to provide students with knowledge in the areas of augmentative communication/augmentative & alternative communication (AAC). The course will explore the assessment and management of people requiring augmentative communication secondary to a variety of diagnoses.

Prereq: 6725, Grad standing, or permission of instructor.

**6990 Capstone Experience in Speech-Language Pathology** G 1

This course provides students with an opportunity to consolidate their clinical and theoretical education by applying the principles of evidence-based practice to a clinical case or topic within their specialization.

Prereq: 5785. Repeatable to a maximum of 3 or hrs. This course is graded S/U.

7143	<b>Clinical Seminar in Hearing Disorders: Hearing Aid Applications</b>	G	1
Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 743. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
7193	<b>Directed Doctoral Studies</b>	G	1 - 6
Directed, individualized areas of study for doctoral students in either the laboratory or clinical research tracks; conference, library, clinic and/or laboratory involvement. Prereq: Doctoral standing in SphHrng, or permission of instructor. Repeatable to a maximum of 30 cr hrs or 20 completions. This course is graded S/U.			
7243	<b>Clinical Seminar in Hearing Disorders: Ethics &amp; Evidence Based Practice</b>	G	1
Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 743. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
7343	<b>Clinical Seminar in Hearing Disorders: Counseling and Report Writing</b>	G	1
Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders. Prereq: Grad standing; or permission of instructor. Repeatable to a maximum of 2 cr hrs or 2 completions. This course is graded S/U. Not open to students with credit for 743.			
7717	<b>Interdisciplinary Perspective on Developmental Disabilities</b>	G	3
Provides an introduction to the psychosocial, medical, and educational implications of developmental disabilities. Prereq: Permission of instructor. Not open to students with credit for 717.01 or 717.03. Cross-listed in HthRhSc, EducSt, SocWork, Nursing, and Psych.			
7718	<b>Interdisciplinary Perspective on Autism Spectrum Disorders</b>	G	3
Teaches the analytical skills necessary to comprehend and formulate an interdisciplinary framework relating to major scientific and theoretical perspectives in autism spectrum disorders. Prereq: Permission of instructor. Not open to students with credit for 717.01 and 717.02. Cross-listed in HthRhSc, EducSt, SocWork, Nursing, and Psych.			
7742	<b>Advanced Clinical Seminar in Speech and Language Disorders</b>	G	1
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders and to preparation for the professional life in Speech-Language Pathology. Prereq: 6751, 6752, 6753, and 6754; and Grad standing in SphHrng. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.			
7805	<b>Pediatric Audiology I</b>	G	3
Etiology and assessment of hearing loss in children. Prereq: 6707 or 707. Not open to students with credit for 805.			
7806	<b>Adult Hearing Disorders</b>	G	3
The nature, diagnosis, and treatment recommendations of adult hearing disorders. Prereq: 5705, 6706, 6707, or equiv. Not open to students with credit for 806.			
7807	<b>Pediatric Audiology II</b>	G	4
The aural rehabilitation process in children, educational policy for children with hearing loss, and assessment and treatment of children with central auditory processing disorders. Prereq: 6735, 7805, 7835. Not open to students with credit for 807.			
7820	<b>Acoustic Phonetics</b>	G	3
An introduction to the acoustic characteristics of human speech sounds, the acoustic theory of speech production, and spectrographic analysis. Prereq: Grad standing in Speech and Hearing Science, or permission of instructor. Not open to students with credit for 820.			
7825	<b>Speech Perception in the Normal and Impaired Ear</b>	G	3
This course is a graduate seminar-format course in speech and hearing science. We will discuss the auditory processing of speech sounds and examine the ramifications of hearing loss and cochlear implantation on this processing. Prereq: Grad standing in SphHrng, or permission of instructor. Not open to students with credit for 820.			
7835	<b>Hearing Aids II</b>	G	3
The selection and fitting of amplification devices and the verification of patient outcomes. Prereq: 6735. Not open to students with credit for 835.			
7843	<b>Advanced Practicum in Audiology</b>	G	3
Students are placed in local audiology clinics, medical practices, and medical centers to put into practice skills learned in the classroom. Prereq: Satisfactory completion of second year of AuD program. Repeatable to a maximum of 6 cr hrs or 2 completions. This course is graded S/U.			

7844	<b>Advanced Practicum in Communication Disorders</b>	G	1 - 4
Advanced practicum with children and adults who have speech, language, or hearing problems. Prereq: Grad standing in SphHrng. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.			
7891	<b>Clinical Seminar in Hearing Disorders: Resumes &amp; Interviewing</b>	G	1
Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders with particular emphasis on preparing for professional practice. Prereq: Grad standing; or permission of instructor. This course is graded S/U. Not open to students with credit for 743.			
7999	<b>Research in Speech and Hearing Science: Thesis</b>	G	1 - 12
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.			
8193	<b>Directed Doctoral Studies</b>	G	1 - 6
Directed, individualized areas of study for doctoral students in either the laboratory or clinical research tracks; conference, library, clinic, and/or laboratory involvement. Prereq: Doctoral standing in SphHrng, or permission of instructor. Repeatable to a maximum of 30 cr hrs or 10 completions. This course is graded S/U.			
8900	<b>Doctoral Proseminar in Speech and Hearing Science</b>	G	1
Advanced studies in speech and hearing science to acquaint doctoral students with departmental research, to pose possible dissertation topics, and to improve research/design skills. Prereq: Doct standing and permission of instructor. Repeatable to a maximum of 4 cr hrs or 4 completions. This course is graded S/U.			
8931	<b>Cochlear Implants</b>	G	2
Cochlear implant components and functions. Patient candidacy, implant programming, and rehabilitation procedures. Prereq: Grad standing; or permission of instructor. Not open to students with credit for 930.01			
8933	<b>Tinnitus</b>	G	2
Potential physiologic causes of tinnitus and hyperacusis; options for assessment and treatment of the disorders. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 930.03.			
8934	<b>Hearing Conservation</b>	G	2
The effect of noise on hearing, physiological and psychological function, productivity, and communication; federal and state regulations reviewed and effects on communities discussed. Prereq: Grad standing; or permission of instructor. Not open to students with credit for 930.05			
8935	<b>Research to Practice</b>	G	2
A seminar course designed to provide audiology and hearing science students with an opportunity to read and discuss recent journal articles relevant to the practice of audiology. In addition, this course is designed to provide an opportunity for audiology and hearing science students to improve their ability to conduct grand round discussions on audiological cases. Prereq: Grad standing. Repeatable to a maximum of 6 cr hrs.			
8940	<b>Advanced Studies in Speech and Hearing Science</b>	G	2
Advanced studies in speech and hearing science to provide doctoral students with special opportunities in advanced areas of speech and hearing science and disorders. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 10 completions. Not open to students with 44 qtr cr hrs for 940.			
8943	<b>Externship</b>	G	3
Students are placed in clinical sites for extended periods to solidify clinical skills and gain experience in the day to day workings of an audiology practice. Prereq: Completion of AuD curriculum with exceptions of 8943 and 8997. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
8950	<b>Seminar in Speech and Hearing Science</b>	G	2
Advanced seminars in speech and hearing science and disorders. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 15 completions. Not open to students with 44 qtr cr hrs for 950.			
8997	<b>Capstone Project</b>	G	1 - 5
Students complete clinical or research-centered project depending on their career interests. Prereq: Completion of first two years' curriculum in AuD program or permission of academic adviser. Repeatable to a maximum of 14 cr hrs or 9 completions. This course is graded S/U.			
8998	<b>Research in Speech and Hearing Science: Thesis</b>	G	1 - 12
Research for thesis purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 5 completions. This course is graded S/U.			
8999	<b>Research in Speech and Hearing Science: Dissertation</b>	G	1 - 12
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs or 20 completions. This course is graded S/U.			

## 436 Statistics

### 1350.01 Elementary Statistics U 3

Introduction to probability and statistics, experiments, and sampling, data analysis and interpretation.  
Prereq: Math 1050, or Math Placement Level S, or permission of instructor. Not open to students with credit for GE Data Analysis course (AEDEcon 2005, AnimSci 2260, Astron 3350, Chem 2210, 2210H, ComLdr 3537, EarthSc 2245, Econ 3400, ENR 2000, Geog 2200.01, 2200.02, HCS 2260, IntStds 3400, Ling 2051, 2051H, Philos 1520, Physics 3700, PolitSc 3780, 4781, Sociol 3549, Stat 1350, 1350.01, 1430, 1430.01, 1430.02, 1430H, 1450, 1450.01, 1450.02, 2450, 2450.01, 2450.02, 2480, 2480.01, 2480.02, 3450, 3450.01, 3450.02, 3460, 3470, 3470.01, 3470.02, 4202, 5301, or 5302). GE data any course.

### 1350.02 Elementary Statistics U 3

Introduction to probability and statistics, experiments, and sampling, data analysis and interpretation. Offered online.  
Prereq: Math 1050, or Math Placement Level S, or permission of instructor. Not open to students with credit for GE Data Analysis course (AEDEcon 2005, AnimSci 2260, Astron 3350, Chem 2210, 2210H, ComLdr 3537, EarthSc 2245, Econ 3400, ENR 2000, Geog 2200.01, 2200.02, HCS 2260, IntStds 3400, Ling 2051, 2051H, Philos 1520, Physics 3700, PolitSc 3780, 4781, Sociol 3549, Stat 1350, 1350.01, 1430, 1430.01, 1430.02, 1430H, 1450, 1450.01, 1450.02, 2450, 2450.01, 2450.02, 2480, 2480.01, 2480.02, 3450, 3450.01, 3450.02, 3460, 3470, 3470.01, 3470.02, 4202, 5301, or 5302). GE data any course.

### 1430.01 Statistics for the Business Sciences U 4

Fundamentals of probability and statistics: Data collection and summaries, random variables, simple linear regression, two-way tables, conditional probability, sampling distributions, confidence intervals, hypothesis tests, analysis of variance. In-person recitation.  
Prereq: Math 1131, 1141, 1151, 1156, 1161.xx, or 1181H, or permission of instructor. Not open to students with credit for 1430, 1430.02, or BusMgt 2320. GE data any course.

### 1430.02 Statistics for the Business Sciences U 4

Fundamentals of probability and statistics: Data collection and summaries, random variables, simple linear regression, two-way tables, conditional probability, sampling distributions, confidence intervals, hypothesis tests, analysis of variance. Partly or fully offered online.  
Prereq: Math 1131, 1141, 1151, 1156, 1161.xx, or 1181H, or permission of instructor. Not open to students with credit for 1430, 1430.01, or BusMgt 2320. GE data any course.

### 1430H Statistics for the Business Sciences U 4

Calculus-based fundamentals of probability and statistics: Data collection and summaries, random variables, simple linear regression, two-way tables, conditional probability, sampling distributions, confidence intervals, hypothesis tests, ANOVA.  
Prereq: Honors standing, and Math 1131, 1151, 1156, 1161.xx, or 1181H; or permission of instructor. Not open to students with credit for 1430 or BusMgt 2320. GE data any course.

### 1450.01 Introduction to the Practice of Statistics U 3

Algebra-based introduction to data analysis, experimental design, sampling, probability, inference, and linear regression. Emphasis on applications, statistical reasoning, and data analysis using statistical software.  
Prereq: Math 1116 or 1130 or above, or Math Placement Level L or M, or permission of instructor. Not open to students with credit for 1450, 1450.02, 2450, 2450.01, 2450.02, 2480, 2480.01, or 2480.02. GE data any course.

### 1450.02 Introduction to the Practice of Statistics U 3

Algebra-based introduction to data analysis, experimental design, sampling, probability, inference, and linear regression. Emphasis on applications, statistical reasoning, and data analysis using statistical software. Offered online.  
Prereq: Math 1116 or 1130 or above, or Math Placement Level L or M, or permission of instructor. Not open to students with credit for 1450, 1450.01, 2450, 2450.01, 2450.02, 2480, 2480.01, or 2480.02. GE data any course.

### 1550 Introduction to Statistical Reasoning U 3

Introduction to statistical reasoning through data and application examples, including an introduction to coding in the R software; intended for students considering the Statistics major.  
Prereq or concur: Math 1152, or permission of instructor. GE data anyl course.

### 2450.01 Introduction to Statistical Analysis I U 3

Calculus-based introduction to statistical data analysis. Includes sampling, experimental design, probability, binomial and normal distributions, sampling distributions, inference, regression, ANOVA, two-way tables.  
Prereq: Math 1131, 1141, 1151, 1156, 1161.xx, or 1181H, or equiv, or permission of instructor. Not open to students with credit for 2450, 2450.02, 2480, 2480.01, 2480.02, or 3202. GE data any course.

### 2450.02 Introduction to Statistical Analysis I U 3

Calculus-based introduction to statistical data analysis. Includes sampling, experimental design, probability, binomial and normal distributions, sampling distributions, inference, regression, ANOVA, two-way tables. Offered online.  
Prereq: Math 1131, 1141, 1151, 1156, 1161.xx, or 1181H, or equiv, or permission of instructor. Not open to students with credit for 2450, 2450.01, 2480, 2480.01, 2480.02, or 3202. GE data anyl course.

### 2480.01 Statistics for the Life Sciences U 3

Calculus-based introduction to the statistical analysis of biological data, including probability, common discrete and continuous distributions, experimental design, hypothesis testing, linear regression and correlation.  
Prereq: Math 1131, 1141, 1151, 1156, 1161.xx, or 1181H, or equiv, or permission of instructor. Not open to students with credit for 2450, 2450.01, 2450.02, 2480, 2480.02, or 3202. GE data anyl course.

### 2480.02 Statistics for the Life Sciences U 3

Calculus-based introduction to the statistical analysis of biological data, including probability, common discrete and continuous distributions, experimental design, hypothesis testing, linear regression and correlation. Offered online.  
Prereq: Math 1131, 1141, 1151, 1156, 1161.xx, or 1181H, or equiv, or permission of instructor. Not open to students with credit for 2450, 2450.01, 2450.02, 2480, 2480.01, or 3202. GE data any course.

### 3201 Introduction to Probability for Data Analytics U 3

An introduction to probability and its role in statistical methods for data analytics. Equal emphasis is placed on analytical and simulation-based methods for quantifying uncertainty. Approaches to assessing the accuracy of simulation methods are discussed. Applications of probability and sampling to big-data settings are discussed.  
Prereq: Math 1152, 1161.xx, 1172, 1181, or equiv; or permission of instructor. Not open to students with credit for 4201 or Math 4530.

### 3202 Introduction to Statistical Inference for Data Analytics U 4

Foundational inferential methods for learning about populations from samples, including point and interval estimation, and the formulation and testing of hypotheses. Statistical theory is introduced to justify the approaches. The course emphasizes challenges that arise when applying classical ideas to big data, partially through the use of computational and simulation techniques.  
Prereq: C- or better in 3201, or permission of instructor. Not open to students with credit for 4202.

### 3301 Statistical Modeling for Discovery I U 3

Statistical models for data analysis in the linear regression framework. The challenges of developing meaningful models for data are explored, with emphasis on the model building process, the use of numerical and graphical diagnostics for assessing model fit, and interpretation and communication of results. Statistical foundations are introduced along with basic inferential techniques.  
Prereq: C- or above in 3202; or 4202 and 5730; or permission of instructor. Prereq or concur: Math 2568, or permission of instructor.

### 3302 Statistical Modeling for Discovery II U 3

This course investigates advanced statistical models for data analysis. The regression methods developed in Stat 3301 are extended to data settings with binary and multi-category outcomes. Commonly used statistical methods for exploring and analyzing multivariate data are introduced. Interpretation and communication of the results of analyses is emphasized.  
Prereq: C- or above in 3301, and Math 2568 or 5520H; or permission of instructor.

### 3303 Bayesian Analysis and Statistical Decision Making U 3

Introduction to concepts and methods for making decisions in the presence of uncertainty. Topics include: formulation of decision problems and quantification of their components; learning about unknown features of a decision problem based on data via Bayesian analysis; characterizing and finding optimal decisions. Techniques and computational methods for practical implementation are presented.  
Prereq: C- or above in 3301, or permission of instructor.

### 3410 Principles of Data Collection and Analysis U 3

Principles of designing experiments; analysis of variance techniques for hypothesis testing; simultaneous confidence intervals; block designs; factorial experiments; random effects and mixed models; observational data.  
Prereq: 3201 and 3202; or permission of instructor.

### 3440 Statistics in Quality U 3

Descriptive statistics; introduction to probability; Bayes theorem; discrete and continuous random variables, expected value, probability distributions; interval estimation for means and proportions; hypotheses tests for means and proportions; least squares regression; one- and two-way anova; control charts; process capability indices.  
Prereq: Math 1152, 1154, 1155, 1161.xx, 1172, or equiv, or permission of instructor. Not open to students with credit for 3450, 3450.01, 3450.02, 3460, 3470, 3470.01 or 3470.02.

### 3450.01 Basic Statistics for Engineers U 2

Introduction to probability; Normal distribution; Confidence intervals for means; Hypothesis tests for means; Multi-factor experiments; Experiments with blocking.  
Prereq: Math 1152, 1161.xx, 1172, or 1181, or equiv, or permission of instructor. Not open to students with credit for 3440, 3450, 3450.02, 3460, 3470, 3470.01, or 3470.02. GE data any course.

### 3450.02 Basic Statistics for Engineers U 2

Introduction to probability; Normal distribution; Confidence intervals for means; Hypothesis tests for means; Multi-factor experiments; Experiments with blocking. Offered online.  
Prereq: Math 1152, 1161.xx, 1172, or 1181, or equiv, or permission of instructor. Not open to students with credit for 3440, 3450, 3450.01, 3460, 3470, 3470.01, or 3470.02. GE data any course.

### 3460 Principles of Statistics for Engineers U 3

Introduction to probability, random variables, distributions, expected values; confidence intervals; paired and unpaired t-tests; linear regression; analysis of variance; blocked experiments; fractional factorial experiments; quality control charts.  
Prereq: Math 1152, 1161.xx, 1172, 1181H, 153, or 254, or equiv, or permission of instructor. Not open to students with credit for 3450, 3470, 427, or 428. GE data anyl course.

<b>3470.01</b>	<b>Introduction to Probability and Statistics for Engineers</b>	<b>U</b>	<b>3</b>
Introduction to probability, Bayes theorem; discrete and continuous random variables, expected value, probability distributions; point and interval estimation; hypotheses tests for means and proportions; least squares regression. Prereq: Math 1152, 1161.xx, 1172, 1181H, or equiv, or permission of instructor. Not open to students with credit for 3440, 3450, 3450.01, 3450.02, 3460, 3470, or 3470.02. GE data only course.			
<b>3470.02</b>	<b>Introduction to Probability and Statistics for Engineers</b>	<b>U</b>	<b>3</b>
Introduction to probability, Bayes theorem; discrete and continuous random variables, expected value, probability distributions; point and interval estimation; hypotheses tests for means and proportions; least squares regression. Offered online. Prereq: Math 1152, 1161.xx, 1172, 1181H, or equiv, or permission of instructor. Not open to students with credit for 3440, 3450, 3450.01, 3450.02, 3460, 3470, or 3470.01. GE data only course.			
<b>4193</b>	<b>Individual Studies</b>	<b>U</b>	<b>1 - 3</b>
Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 5 completions. This course is graded S/U.			
<b>4193H</b>	<b>Honors Individual Studies in Undergraduate Topics in Statistics</b>	<b>U</b>	<b>1 - 4</b>
Individual conferences, assigned readings, and reports on minor investigations in undergraduate topics in Statistics (At honors level). Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs or 5 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 5</b>
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions. This course is graded S/U.			
<b>4201</b>	<b>Introduction to Mathematical Statistics I</b>	<b>U</b>	<b>4</b>
Basic concepts in mathematical statistics, including probability, discrete and continuous distributions and densities, mathematical expectation, functions of random variables, transformation techniques, sampling distributions, order statistics. Prereq: C- or better in Math 2153, 2162.xx, 2182H, or 4182H, or permission of instructor. Not open to students with credit for 3201, 4202, 6201, 6301, 6801, Math 4530 or 5530H.			
<b>4202</b>	<b>Introduction to Mathematical Statistics II</b>	<b>U</b>	<b>4</b>
Decision theory, point and interval estimation, Neyman-Pearson lemma, likelihood ratio tests, tests for means, variances, and proportions, nonparametric tests, regression, and ANOVA. Prereq: C- or better in 4201, Math 4530, or 5530H, or permission of instructor. Not open to students with credit for 3202, 6201, 6302, or 6802. GE data only course.			
<b>4301</b>	<b>Advanced Statistical Inference</b>	<b>U</b>	<b>3</b>
Advanced probability models and fundamentals of inferential procedures; distribution functions, moment generating functions, transformations, order statistics, large-sample theory, classical hypothesis testing, distribution-free hypothesis tests. Prereq: 3201 and 3202; or 4201 and 4202; or permission of instructor.			
<b>4302</b>	<b>Computational Statistics</b>	<b>U</b>	<b>3</b>
Topics in computational statistics using the R software, including design and execution of classical and modern Monte Carlo experiments, and statistical inference based on resampling methods, such as bootstrap, jackknife, and permutation. Prereq: 3301 and 4301, or permission of instructor.			
<b>4620</b>	<b>Introduction to Statistical Learning</b>	<b>U</b>	<b>2</b>
The course provides an introduction to the principles of statistical learning and standard learning techniques for regression, classification, clustering, dimensionality reduction, and feature extraction. Prereq: C- or better in 3302, or permission of instructor.			
<b>4911</b>	<b>Data Analytics Capstone</b>	<b>U</b>	<b>4</b>
A teamwork-based synthesis of the Data Analytics major curriculum through the analysis of data supplied by a partnering institution. Prepares students for the complexity of data analysis they will encounter outside of the university in a mentored setting. Prereq: 4620, or permission of instructor.			
<b>4998</b>	<b>Undergraduate Research in Statistics</b>	<b>U</b>	<b>1 - 5</b>
Designed to give undergraduates experience in carrying out statistics research. Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 6 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Research in Statistics</b>	<b>U</b>	<b>1 - 5</b>
Designed to give undergraduates experience in carrying out statistics research. Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 6 completions. This course is graded S/U.			
<b>4999H</b>	<b>Undergraduate Honors Thesis Research in Statistics</b>	<b>U</b>	<b>1 - 5</b>
Designed to give undergraduates experience in carrying out statistics research. Prereq: Permission of instructor. Repeatable to a maximum of 30 or hrs or 6 completions. This course is graded S/U.			

<b>5301</b>	<b>Intermediate Data Analysis I</b>	<b>U G</b>	<b>4</b>
The first course in a two-semester non-calculus sequence in data analysis covering descriptive statistics, design of experiments, probability, statistical inference, one-sample t, goodness of fit, two sample problem, and one-way ANOVA. Prereq: Math 1075 or equiv, or Math Placement Level of R, or permission of instructor. Not open to students with credit for 5302. GE data only course.			
<b>5302</b>	<b>Intermediate Data Analysis II</b>	<b>U G</b>	<b>3</b>
The second course in a two-semester sequence in data analysis covering simple linear regression (inference, model diagnostics), multiple regression models, variable selection, model selection, two-way ANOVA, mixed effects model. Prereq: 5301, or permission of instructor. GE data only course.			
<b>5510</b>	<b>Statistical Foundations of Survey Research</b>	<b>U G</b>	<b>3</b>
Understand and practice methods of survey research and data analysis including questionnaire design and pilot testing, non-sampling and sampling errors, sampling design, descriptive statistics, estimation, and hypothesis testing; and ethics. Prereq: 1350 (135), 1450 (145), or 5301 (528), and Math 1075 (104), or equiv; or permission of instructor. Not open to students with credit for 6510 (651) or 551.			
<b>5550</b>	<b>Introductory Time Series Analysis</b>	<b>U G</b>	<b>3</b>
Introduces the statistical methodology and models to analyze time series data in practice. Prereq: 3301; or 4202 and 5302; or permission of instructor. Not open to students with credit for 6550 (635) or 7550.			
<b>5730</b>	<b>Introduction to R for Data Science</b>	<b>U G</b>	<b>2</b>
Introduces underlying concepts of the R programming language and R package ecosystem for manipulation, visualization, and modeling of data, and for communicating the results of and enabling replication of their analyses. Prereq: 1350, 1350.01, 1350.02, 1450, 1450.01, 1450.02, 1550, 2450, 2450.01, 2450.02, 2480, 2480.01, 2480.02, 3201, 3202, 3450, 3450.01, 3450.02, 3460, 3470, 3470.01, 3470.02, 4202, 5301, or 5302, or equiv., or permission of instructor.			
<b>5740</b>	<b>Introduction to SAS Software</b>	<b>U G</b>	<b>2</b>
The basic statistical procedures covered will be illustrated using SAS. The intent of the course is to cover some of the SAS statistical methods that graduate students from outside the Statistics Department require for their own research. Prereq: 3202 or 4202 or 5301, or permission of instructor.			
<b>5760</b>	<b>Statistical Consulting Support from the SCS</b>	<b>U G</b>	<b>3</b>
Graduate or undergraduate students enrolled in this course will work with a graduate student consultant employed by the Statistical Consulting Service for the purpose of making progress on their thesis or dissertation. Repeatable to a maximum of 15 or hrs. This course is graded S/U.			
<b>6040</b>	<b>Mentored Teaching Experience in Statistics</b>	<b>G</b>	<b>2</b>
The application of best pedagogical practices in selected statistics teaching experiences. A supervised teaching component is included. Prereq: Grad standing in Statistics or Biostatistics, and permission of instructor. Not open to students with credit for 604. This course is graded S/U.			
<b>6193</b>	<b>Individual Studies in Foundational Graduate Topics in Statistics</b>	<b>G</b>	<b>1 - 4</b>
Individual conferences, assigned readings, and reports on minor investigations in foundational graduate topics in Statistics. Prereq: Permission of instructor. Repeatable to a maximum of 20 or hrs or 5 completions. This course is graded S/U.			
<b>6194</b>	<b>Group Studies in Foundational Graduate Topics in Statistics</b>	<b>G</b>	<b>1 - 5</b>
Designed to give groups of students an opportunity to pursue special studies in foundational graduate topics in Statistics not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 or hrs or 3 completions. This course is graded S/U.			
<b>6201</b>	<b>Mathematical Statistics</b>	<b>G</b>	<b>4</b>
Probability, random variables, expectation, moment generating functions, discrete and continuous distributions, limit theorems, maximum likelihood and Bayesian estimation, confidence intervals, hypothesis tests, Neyman-Pearson lemma, t and F tests. Prereq: Math 2153 or equiv, or permission of instructor. Not open to students with credit for 6301 or 6801.			
<b>6301</b>	<b>Probability for Statistical Inference</b>	<b>G</b>	<b>3</b>
Introduction to probability, random variables, and distribution theory; intended primarily for students in MAS degree program. Prereq: Math 4547 (548), or permission of instructor. Not open to students with credit for 6801 (620 or 621), Math 4530 (530), or 5530H (531).			
<b>6302</b>	<b>Theory of Statistical Analysis</b>	<b>G</b>	<b>3</b>
Estimation, hypothesis tests, best tests, likelihood ratio tests, confidence sets, sufficiency, efficient estimators; intended primarily for students in the MAS degree program. Prereq: 6301 (610) or 6801 (620), or permission of instructor. Not open to students with credit for 6802 (621, 622, or 623).			

## 438 Statistics

### 6410 Design and Analysis of Experiments G 4

Principles of designing experiments; analysis of variance techniques for hypothesis testing, simultaneous confidence intervals; block designs, factorial experiments, random effects and mixed models, split plot designs, response surface design.  
Prereq: 6201 (521), 6302 (623), or 6802 (622), and 6450 (645) or 6950; or permission of instructor. Not open to students with credit for 6910 (641).

### 6450 Applied Regression Analysis G 4

Simple and multiple linear regression, diagnostics, model selection, models with categorical variables.  
Prereq: 6201, or equiv, or permission of instructor. Not open to students with credit for 6950.

### 6500 Statistical Machine Learning G 3

Statistical models and algorithms for supervised and unsupervised learning; linear and logistic regression; classification and LDA; cross-validation and bootstrap; variable selection; ridge and LASSO penalization; smoothing splines and GAMs; SVM and kernels; CART and random forests; bagging; boosting; feed-forward and convolutional neural networks; k-means clustering and Gaussian mixtures; PCA.  
Prereq: 6450, or permission of instructor. Not open to students with credit for 7620.

### 6510 Survey Sampling Methods G 3

Sampling from finite populations, simple random, stratified, systematic and cluster sampling design, ratio and regression estimates, non-sampling errors, models.  
Prereq: 5301 (529) or PubHBio 6212 (703), or equiv. Not open to students with credit for 651 or PubHBio 7225 (651). Cross-listed in PubHBio 7225.

### 6520 Applied Statistical Analysis with Missing Data G 3

Models and methods for the dataset with missing values, including imputation, likelihood-based, and Bayesian models.  
Prereq: 6201, 6302 (623), or 6802 (622), and 6450 (645), 6950, PubHBio 6203, or 703; or permission of instructor. Not open to students with credit for 6520 (652) or PubHBio 7240 (652). Cross-listed in PubHBio 7240.

### 6530 Introduction to Spatial Statistics G 2

Provides an introduction to spatial statistical methods based on the viewpoint that spatial data are a realization from a random process.  
Prereq: 6450 (645), 6950, or Geog 883.02, or permission of instructor. Not open to students with credit for 8530 (829) or 631.

### 6540 Applied Stochastic Processes G 3

An introduction to some of the most commonly encountered stochastic processes. Goals include understanding basic theory as well as applications. Students should be familiar with basic probability, including conditional probability and expectation.  
Prereq: 6301 (610) or equiv, or permission of instructor. Not open to students with credit for 632.

### 6550 The Statistical Analysis of Time Series G 2

To develop knowledge of time series processes, modeling (identification, estimation, and diagnostics), and forecasting methods. Experience is gained in the statistical theory so as to be able to analyze time series data in practice.  
Prereq: 6201, 6302, or 6802, and 6450 or 6950; or permission of instructor.

### 6560 Applied Multivariate Analysis G 3

An introduction to classical multivariate statistical methods based on the multivariate normal distribution. Sufficient matrix algebra will be covered to enable students to understand multivariate methods using matrix notation.  
Prereq: 6450 (645) or 6950, or equiv, or Math 2568 (568), or equiv, or permission of instructor. Not open to students with credit for 656.

### 6570 Applied Bayesian Analysis G 2

Introduces various aspects of Bayesian modeling (including conditionally specified models and models for non-normal data) and simulation-based model-fitting strategies.  
Prereq: 6301 (610) or 6801 (621 and 622), or permission of instructor. Prereq or concur: 6450 (645) or 6950, and 6302 (623) [with 6301 prerequisite] or 6802 [with 6801 prerequisite]; or permission of instructor. Not open to students with credit for 625.

### 6605 Applied Survival Analysis G 3

Introduction to time-to-event data analysis. Topics include summary statistics, non-parametric methods, semiparametric and parametric models, and competing risks analysis. Focus is on analysis of health data using statistical software.  
Prereq: 6450, 6950, or PubHBio 6211. Not open to students with credit for 6605 or PubHBio 7235. Cross-listed in PubHBio 7235.

### 6610 Applied Nonparametric Statistics G 3

Noncalculus treatment of nonparametric tests, confidence intervals, estimation; topics include one- and two-sample problems, one- and two-way analysis of variance, multiple comparisons, correlation.  
Prereq: 5301 (529), 6201, or 6302 (623), or equiv, or permission of instructor. Not open to students with credit for 661.

### 6615 Design and Analysis of Clinical Trials G 2

Design, monitoring, and analysis of clinical trials; includes protocol development, randomization schemes, sample size methods, and ethical issues.  
Prereq: 5301 (528 and 529), or equiv, or permission of instructor. Not open to students with credit for Biostat 615 or PubHBio 7215. Cross-listed in PubHBio 7215.

### 6620 Environmental Statistics G 2

Survey of statistical methods for environmental data, with a focus on applications. Topics include sampling, regression, censoring, risk analysis, bioassay, time series, spatial statistics, and environmental extremes.  
Prereq: 5302 (529) or 6450 (645) or 6910 or Geog 683.xx or 833.01; prereq or concur: Stat 6910; or permission of instructor. Not open to students with credit for 662.

### 6625 Statistical Analysis of Genetic Data G 3

Introduction to Mendelian principles, genetic epidemiology, and molecular genetics; family studies; model-based and model-free linkage analysis for mapping disease genes; genome wide association studies; association analysis using haplotypes.  
Prereq: 6301 (610) and 6302 (623), or permission of instructor.

### 6650 Discrete Data Analysis G 2

Two-by-two tables; cross-sectional, prospective, and retrospective studies; measures and tests of association; log linear models; association graphs; analysis of stratified tables.  
Prereq: 5302 (530), 6450 (645), 6950, PubHBio 6203, or 703, or permission of instructor. Not open to students with credit for 665.

### 6730 Introduction to Computational Statistics G 2

Introduction to computational statistics. Students will learn how to manipulate data, perform statistical analyses, perform simple Monte Carlo experiments, use resampling methods and discuss the results obtained from their analyses.  
Prereq: 6301 (610), 6302 (623), and 6410 (641) or 6910, and 6450 (645) or 6950; or permission of instructor. Not open to students with credit for 673.

### 6740 Data Management and Graphics for Statistical Analyses G 3

Data manipulation for statistical analyses, missing data calculations, merging and transporting data sets, formatting data analysis results, using relational databases and SQL, character data, graphical presentation of data, and macro programming. No prior knowledge of SAS programming is required.  
Prereq: Not open to students with credit for 5740.

### 6750 Statistical Consulting and Collaboration G 2

Role of the statistician as both consultant and collaborator; enhancement of analytical and communication skills; structuring working engagements; introduction to consulting-specific technical skills; experience working on consulting projects.  
Prereq: 6450 (645) or 6950, or permission of instructor. Not open to students with credit for 600 or 601. This course is graded S/U.

### 6801 Statistical Theory I G 4

Introduction to probability, random variables, distribution theory and principles of inference. Intended primarily for students in the PhD program in Statistics or Biostatistics.  
Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Not open to students with credit for 6301 (610) or 620.

### 6802 Statistical Theory II G 4

Introduction to statistical inference: Estimation, hypothesis testing, confidence intervals, and decision theory. Intended primarily for students in the PhD program in Statistics or Biostatistics.  
Prereq: 6801, or permission of instructor. Not open to students with credit for 622.

### 6860 Foundations of the Linear Model G 2

Linear models; Least squares estimates; Multivariate normal distribution; Maximum likelihood estimators; Covariance matrices, information matrices; Quadratic forms; Principal components; Orthogonal polynomial regression; Non-central distributions.  
Prereq: Math 2568 (568) or equiv, or permission of instructor. Concur: 6802. Not open to students with credit for 742.

### 6910 Applied Statistics I G 4

One and two-sample problems, randomization-based inference, contingency tables, analysis of variance, the mixed model, experimental designs. Intended primarily for students in the PhD program in Statistics or Biostatistics.  
Prereq or concur: 6801, or permission of instructor. Not open to students with credit for 6410 (641).

### 6950 Applied Statistics II G 4

Simple and multiple linear regression, diagnostics, model selection, the mixed model, and generalized linear models. Intended primarily for students in the PhD program in Statistics or Biostatistics.  
Prereq: 6801 (620) and 6910 (641), or permission of instructor. Not open to students with credit for 6450 (645).

### 6998 Research in Foundational Graduate Topics in Statistics G 1 - 5

Research topics in foundational graduate topics in Statistics.  
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs or 6 completions. This course is graded S/U.

### 7201 Theory of Probability G 3

Measure and integration, random variables, independence, integration and expectation, convergence, characteristic functions, central limit theorems. Intended primarily for students in the PhD program in Statistics or Biostatistics.  
Prereq: 6802 (622), or permission of instructor. Not open to students with credit for 722 or 723.



<b>7301</b>	<b>Advanced Statistical Theory I</b>	<b>G</b>	<b>3</b>
Exponential families, sufficiency, Rao-Blackwell theorem, information, efficiency, maximum likelihood estimation, M-estimation, asymptotics, density estimation. Intended primarily for PhD students in Statistics or Biostatistics. Prereq: 6802 (622), or permission of instructor. Not open to students with credit for 821.			
<b>7302</b>	<b>Advanced Statistical Theory II</b>	<b>G</b>	<b>3</b>
Hypothesis testing: likelihood ratio tests, resampling and permutation based tests, sequential tests, multiple testing, asymptotic distributions of test statistics. Intended primarily for PhD students in Statistics or Biostatistics. Prereq: 7301, or permission of instructor. Not open to students with credit for 822.			
<b>7303</b>	<b>Bayesian Analysis and Decision Theory</b>	<b>G</b>	<b>3</b>
Decision theory, loss functions, subjective and objective prior distributions, posterior distribution, estimation, testing, prediction, sensitivity analysis, hierarchical modeling. Intended primarily for PhD students in Statistics or Biostatistics. Prereq: 7301 or 622, or permission of instructor. Not open to students with credit for 820.			
<b>7410</b>	<b>Theory of the Linear Model</b>	<b>G</b>	<b>3</b>
Theory of the general linear model, estimability, power and sample size. Random effects and nested models. Analysis of covariance. Models with block variables. Generalized linear models. Prereq: 6802 (622), 6860, and 6950 (645) or 6910 (641); or permission of instructor. Not open to students with credit for 742.			
<b>7430</b>	<b>Generalized Linear Models</b>	<b>G</b>	<b>3</b>
Introduces the statistical theory and methods to extend regression and analysis of variance to non-normal data. Students will learn to use fixed and random effect generalized linear models to model univariate and multivariate data. Prereq: 6801 (620 and 621), 6802 (621 and 622), 6910 (641), 6950 (645), and 7410 (742); or permission of instructor. Not open to students with credit for 743.			
<b>7470</b>	<b>Advanced Longitudinal Data Analysis</b>	<b>G</b>	<b>3</b>
Classical and modern statistical approaches for continuous and discrete longitudinal data. Random effects and growth curve models, measurement error, generalized estimating equations, estimation with missing data, multivariate longitudinal data. Prereq: 6802 (622) and 6950 (645), or permission of instructor. Not open to students with credit for 726 or PubHBio 8230. Cross-listed in PubHBio 8230.			
<b>7540</b>	<b>Theory of Stochastic Processes</b>	<b>G</b>	<b>3</b>
Markov chains, ergodicity, Poisson process, martingales, Brownian motion, Gaussian processes, diffusion processes. Intended primarily for students in the PhD program in Statistics or Biostatistics. Prereq: 7201, or permission of instructor. Not open to students with credit for 832.			
<b>7550</b>	<b>Time Series Theory and Methods</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in the statistical theory and methods for the analysis of time series processes. Topics will be announced each semester. Prereq: 6560 (656) or 6860, 6801 (620 and 621), 6802 (621 and 622), and 6950 (645); or permission of instructor.			
<b>7560</b>	<b>Multivariate Analysis</b>	<b>G</b>	<b>3</b>
Matrix normal distribution; Matrix quadratic forms; Matrix derivatives; The Fisher scoring algorithm. Multivariate analysis of variance; Random coefficient growth models; Principal components; Factor analysis; Discriminant analysis; Mixture models. Prereq: 6802 (622), or permission of instructor. Not open to students with credit for 755 or 756.			
<b>7605</b>	<b>Advanced Regression Modeling of Time-to-Event Data</b>	<b>G</b>	<b>3</b>
Advanced topics in survival analysis. Proportional hazards models, parametric regression models, length-bias and prevalent sampling, multivariate survival analysis, counting processes, recurrent events. Prereq: 6802 (622) and 6950. Not open to students with credit for PubHBio 8235 or 706. Cross-listed in PubHBio 8235.			
<b>7610</b>	<b>Theory of Nonparametric Statistics</b>	<b>G</b>	<b>3</b>
Theory of distribution-free statistics based on counting and ranking; U-statistics; univariate and multivariate rank regression; additional topics on nonparametric statistics. Prereq: 6802 (622), or permission of instructor. Not open to students with credit for 761.			
<b>7620</b>	<b>Elements of Statistical Learning</b>	<b>G</b>	<b>3</b>
Statistical and Machine Learning - Applied modern regression, pattern recognition and clustering techniques for discovery/understanding of underlying statistical structures within large, complex and noisy data sets. Prereq: 6301 (610) and 6302 (623), or 6801 (620) and 6802 (622), or ECE 6001, or 7001, or equiv; or permission of instructor. Not open to students with credit for 760.			
<b>7630</b>	<b>Nonparametric Function Estimation</b>	<b>G</b>	<b>2</b>
Function estimation with emphasis on smoothing splines, flexible model building with multivariate data, reproducing kernel Hilbert space methods, additional topics in smoothing. Prereq: 6802 and 6950, or permission of instructor.			
<b>7730</b>	<b>Advanced Computational Statistics</b>	<b>G</b>	<b>3</b>
Covers modern methods of statistical computing, with emphasis on how and why they work. As a prerequisite, students should be able to program basic functions. Intended primarily for students in the PhD program in Statistics or Biostatistics. Prereq: 6802 (622) and 6950 (645); or permission of instructor. Not open to students with credit for 773.			

<b>7755</b>	<b>Biostatistical Collaboration</b>	<b>G</b>	<b>2</b>
Basic biomedical research methodologies; collaborate with biomedical researchers to design experiments and plan analyses; protocol preparation; professional skills development; statistical report preparation. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Not open to students with credit for 709. This course is graded S/U. Cross-listed in PubHBio 7245.			
<b>7789</b>	<b>Survey Research Practicum</b>	<b>G</b>	<b>3</b>
Hands-on applications for students interested in the planning, implementation, and analysis of a scientific sample survey. Prereq: Admission to Grad interdisciplinary specialization in survey research, or permission of instructor. Not open to students with credit for 7789 or 789 in AEDEcon, AgrEduc, BusML, Comm, Econ, EduPL, Geog, PolitSc, Psych, PubHlth, PubAfrs, Sociol, or Stat. Cross-listed in Comm, Econ, and PolitSc.			
<b>7998</b>	<b>Intermediate Graduate Research in Statistics</b>	<b>G</b>	<b>1 - 4</b>
Research topics in intermediate graduate topics in Statistics. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 3 completions. This course is graded S/U.			
<b>7999</b>	<b>Masters Thesis Research in Statistics</b>	<b>G</b>	<b>1 - 18</b>
Masters Thesis Research in Statistics. Prereq: Grad standing in Stat. Repeatable. This course is graded S/U.			
<b>8010</b>	<b>Seminar on Research Topics in Statistics</b>	<b>G</b>	<b>1</b>
Lectures on current research by each graduate faculty member in statistics. Prereq: Grad standing in Statistics. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies in Advanced Graduate Topics in Statistics</b>	<b>G</b>	<b>1 - 5</b>
Individual conferences, assigned readings, and reports on minor investigations in advanced graduate topics in Statistics. Prereq: Permission of instructor. Repeatable to a maximum of 25 cr hrs or 5 completions. This course is graded S/U.			
<b>8194</b>	<b>Group Studies in Advanced Graduate Topics in Statistics</b>	<b>G</b>	<b>1 - 5</b>
Designed to give groups of students an opportunity to pursue special studies in advanced graduate topics in Statistics not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 25 cr hrs or 5 completions. This course is graded S/U.			
<b>8310</b>	<b>Large Sample Theory</b>	<b>G</b>	<b>3</b>
Stochastic Convergence, Delta Method, Moment Estimators, M- and Z- estimators, Efficiency of Estimators, U- Statistics, Rank, Sign and Permutation Statistics, Large sample methods for functional data. Prereq: 7201 (722 and 723) and 7302 (821), or permission of instructor. Not open to students with credit for 888.			
<b>8450</b>	<b>Stochastic Epidemic Models</b>	<b>G</b>	<b>3</b>
Introduction to methods of analyzing large population epidemic data from the viewpoint of stochastic processes theory. Topics will cover the SIR (susceptible-infective-removed) epidemic models both under the homogenous and restricted contact structures. Lectures will introduce the necessary background in probability and statistics along with real-life applications (e.g. HIV, H1N1 and SARS). Prereq: 6801, and 6540 or 7540; or permission of instructor. Not open to students with credit for PubHBio 8450. Cross-listed in PubHBio.			
<b>8460</b>	<b>Special Topics in Design of Experiments</b>	<b>G</b>	<b>3</b>
Selection of Advanced Topics from: Theory of optimal design; Computational Algorithms; Design and analysis of computer experiments; Design for nonlinear models; Discrete choice experiments. Prereq: 7410 (742), or permission of instructor. Not open to students with credit for 847.			
<b>8530</b>	<b>Spatial and Spatio-Temporal Statistics</b>	<b>G</b>	<b>3</b>
Geostatistics, kriging, hierarchical statistical models, Markov random fields, spatial point processes, spatio-temporal statistical models. Intended primarily for students in the PhD program in Statistics or Biostatistics. Prereq: 6802 (622) and 6950 (645), or permission of instructor. Not open to students with credit for 829.			
<b>8540</b>	<b>Topics in Advanced Stochastic Processes</b>	<b>G</b>	<b>3</b>
Dedicated to advanced topics in stochastic processes, such as stochastic integration and stochastic differential equations (SDEs), numerical methods and inference for SDEs, etc. Applications in several areas will be discussed. Prereq: 7201 (722 and 723), or permission of instructor.			
<b>8570</b>	<b>Advanced Bayesian Analysis: Modeling</b>	<b>G</b>	<b>3</b>
A systematic advanced treatment of areas of current interest in Bayesian analysis. Topics will be announced each semester. Prereq: 7303 (820), or permission of instructor. Repeatable to a maximum of 6 cr hrs.			

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<b>8605</b>	<b>Advanced Survival Analysis</b>	<b>G</b>	<b>3</b>
Counting process approach to modeling life history data, including Nelson-Aalen, product limit, and K-sample estimators. Topics from parametric models, semiparametric proportional and additive hazards regressions, and multivariate survival models. Prereq: 7201 (722 and 723) and 7540 (832), or permission of instructor. Not open to students with credit for Biostat 805 and 806.			
<b>8625</b>	<b>Statistical Methods for Analyzing Genetic Data</b>	<b>G</b>	<b>3</b>
Basic principles of population genetics; gene frequency estimation; likelihood computation on pedigrees using peeling algorithm, Lander-Green algorithm, Monte Carlo methods; linkage analysis, population and family based association studies. Prereq: 6802 (622), or permission of instructor. Not open to students with credit for 833.			
<b>8750.01</b>	<b>Research Group in Statistical Learning and Data Mining</b>	<b>G</b>	<b>1</b>
Research group in Statistical Learning and Data Mining. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8750.02</b>	<b>Research Group in Design of Physical and Computer Experiments</b>	<b>G</b>	<b>1</b>
Research group in Design of Physical and Computer Experiments. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8750.03</b>	<b>Research Group in Statistical Genetics and Bioinformatics</b>	<b>G</b>	<b>1</b>
Research group in Genetics. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8750.04</b>	<b>Research Group in Quantitative Methods in Consumer Behavior</b>	<b>G</b>	<b>1</b>
Research group in Quantitative Methods in Consumer Behavior. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8750.05</b>	<b>Research Group in Ranked Set Sampling</b>	<b>G</b>	<b>1</b>
Research group in Ranked Set Sampling. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8750.06</b>	<b>Research Group in Spatial Statistics and Environmental Statistics</b>	<b>G</b>	<b>1</b>
Research group in Spatial Statistics and Environmental Statistics. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8750.08</b>	<b>Research Group in Observational Data</b>	<b>G</b>	<b>1</b>
Research group in Observational Data. Topics vary by the offering. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8810</b>	<b>Advanced Topics in Statistics I</b>	<b>G</b>	<b>1 - 3</b>
A systematic advanced treatment of areas of current interest in Statistics. Topics will be announced each semester. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions.			
<b>8820</b>	<b>Advanced Topics in Statistics II</b>	<b>G</b>	<b>1 - 3</b>
A systematic advanced treatment of areas of current interest in Statistics. Topics will be announced each semester. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 24 cr hrs or 8 completions.			
<b>8895</b>	<b>Statistics Seminar</b>	<b>G</b>	<b>1</b>
Topics range over the current research interests of statisticians from around the world; some lectures are of an expository nature. Prereq: Grad standing in Statistics or Biostatistics, or permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>8998</b>	<b>PhD Dissertation Research in Statistics (Pre-candidacy)</b>	<b>G</b>	<b>1 - 18</b>
PhD Dissertation research in Statistics (Pre-candidacy). Prereq: Permission of instructor. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>PhD Dissertation Research in Statistics</b>	<b>G</b>	<b>1 - 18</b>
PhD Dissertation research in Statistics. Prereq: Permission of instructor. Repeatable. This course is graded S/U.			

## Surgery

<b>7010</b>	<b>Seminar in Practice Management for Surgeons I</b>	<b>G</b>	<b>1</b>
Provides surgery residents basic information on business principles related to practice of medicine and surgery. Prereq: Medical Degree and one year of Surgical Residency. This course is graded S/U.			

<b>7020</b>	<b>Seminar in Practice Management for Surgeons II</b>	<b>G</b>	<b>1</b>
Provides surgery residents basic information on business principles related to practice of medicine and surgery. Prereq: Medical Degree and one year of Surgical Residency. This course is graded S/U.			
<b>7030</b>	<b>Seminar in Practice Management for Surgeons III</b>	<b>G</b>	<b>1</b>
Provides surgery residents basic information on business principles related to practice of medicine and surgery. Prereq: Medical Degree and one year of Surgical Residency. This course is graded S/U.			
<b>7040</b>	<b>Seminar in Practice Management for Surgeons IV</b>	<b>G</b>	<b>1</b>
Provides surgery residents basic information on business principles related to practice of medicine and surgery. Prereq: Medical Degree and one year of Surgical Residency. This course is graded S/U.			
<b>7050</b>	<b>Seminar in Practice Management for Surgeons V</b>	<b>G</b>	<b>1</b>
Provides surgery residents basic information on business principles related to practice of medicine and surgery. Prereq: Medical Degree and one year of Surgical Residency. This course is graded S/U.			
<b>7060</b>	<b>Seminar in Practice Management for Surgeons VI</b>	<b>G</b>	<b>1</b>
Provides surgery residents basic information on business principles related to practice of medicine and surgery. Prereq: Medical Degree and one year of Surgical Residency. This course is graded S/U.			
<b>7190.05</b>	<b>Research Studies in Surgery: Pediatric Surgery</b>	<b>G</b>	<b>1 - 12</b>
Pediatric Surgery. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.01</b>	<b>Individual Studies: General Surgery</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.02</b>	<b>Individual Studies: Pediatric Surgery</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.04</b>	<b>Individual Studies: Surgical Infectious Diseases</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.06</b>	<b>Individual Studies: Surgical Oncology</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.08</b>	<b>Individual Studies: Transplantation</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.10</b>	<b>Individual Studies: Wound Healing</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.12</b>	<b>Individual Studies: Molecular Medicine</b>	<b>G</b>	<b>1 - 12</b>
Conducting basic science or clinical research on a surgically related topic under faculty supervision. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8501</b>	<b>Career Development Course for Surgeons</b>	<b>G M</b>	<b>2</b>
This course is designed for surgery residents to strengthen their research practices and data collection skills, to gain the skills needed for grant writing, to enhance awareness of the Surgeon-Scientist Career Path, to develop research skills to enhance independence and career success, to facilitate selection and optimization of first faculty position, and to enhance awareness of career resources. Prereq: Surgical Resident, Surgical Fellow, Surgery Junior Faculty, or permission of instructors. Repeatable to a maximum of 6 cr hrs.			

<b>8505</b>	<b>Communication Through Scientific Writing</b>	<b>G M</b>	<b>1</b>
Scientific writing is a critical skill set necessary to facilitate dissemination of new knowledge and research collaborations, and promote effective communication of ideas and research results. This series of facilitated web-based translational science curriculum is designed to help clinicians enhance their communication skills and disseminate their research findings. Course repeatable one time. Prereq: Enrollment in Masters of Medical Science program, or permission of instructor. Repeatable to a maximum of 2 cr hrs.			
<b>8814</b>	<b>Responsible Conduct of Research: Human Participants and the Use of Animals in Biomedical Research</b>	<b>G</b>	<b>2</b>
Responsible conduct of research with human participants and the use of animals in biomedical research is crucial to maintaining the public trust in both the results and the methods of biomedical research. Repeatable to a maximum of 4 cr hrs.			
<b>8815</b>	<b>Training in Clinical Research I</b>	<b>G</b>	<b>2</b>
Provide exposure to students to ongoing clinical trials at OSUMC and essential skills that are needed to conduct research. Prereq: Permission of instructor. This course is graded S/U.			
<b>8850</b>	<b>Seminars in Surgery: Grand Rounds</b>	<b>G</b>	<b>2</b>
Discussion of current clinical advances in pertinent literature in Surgery with emphasis on Clinical and Basic Sciences as well as translational application. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>8860</b>	<b>Seminars in Surgery: Morbidity and Mortality</b>	<b>G</b>	<b>2</b>
Educational seminars in Surgical Complications. Prereq: Must be a PGY-2 or more advanced in surgery residency or related programs. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>8900</b>	<b>Applications of Immunology in Surgery</b>	<b>G</b>	<b>2</b>
A multi-disciplinary group of students at the graduate, doctoral and post-doctoral level will discuss recently published literature (last 12 months) in the field of immunology and landmark immunology studies from prominent immunology journals as they apply to surgical problems. Students will select articles which are relevant to a broader audience but also relevant to their own research interests. Clinical background in medicine and surgery with interest in immunology, and the application of basic immunology discoveries to surgical practice. Prereq: Grad, or Prof standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8999</b>	<b>Research in Surgery</b>	<b>G</b>	<b>1 - 12</b>
Research for thesis purposes. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			

## Swahili

<b>1101</b>	<b>Elementary Swahili I</b>	<b>U</b>	<b>4</b>
Development of oral proficiency in Swahili through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers of the language through regular course enrollment. Prereq: Not open to students with credit for 101. This course is available for EM credit. GE for lang course.			
<b>1102</b>	<b>Elementary Swahili II</b>	<b>U</b>	<b>4</b>
Continuation of 1101; further work on developing oral proficiency in Swahili through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers of the language through regular course enrollment. Prereq: 1101. Not open to students with credit for 102. This course is available for EM credit. GE for lang course.			
<b>1103</b>	<b>Elementary Swahili III</b>	<b>U</b>	<b>4</b>
Continuation of 1102; further work on developing oral proficiency in Swahili through basic listening, speaking, and reading skills using a competency-based curriculum. Not open to native speakers of the language through regular course enrollment. Prereq: 1102. Not open to students with credit for 104. This course is available for EM credit. GE for lang course.			
<b>2201</b>	<b>Intermediate Swahili I</b>	<b>U</b>	<b>3</b>
Enhances the students proficiency in the speaking, reading, listening, and writing of the Swahili language in meaningful communicative contexts. Prereq: 1103. This course is available for EM credit.			
<b>3301</b>	<b>Intermediate Swahili III</b>	<b>U</b>	<b>3</b>
A cultural and historical overview of the Swahili people and their location in East Africa. Prereq: 2241. This course is available for EM credit.			

## Swedish

<b>1101</b>	<b>Swedish I</b>	<b>U</b>	<b>4</b>
Introduction to language and culture of Sweden with emphasis on the acquisition of basic communication skills in a cultural context. Closed to native speakers of this language. Prereq: Not open to students with credit for 101.01, or to students with 2 or more years of study in this language in high school, except by permission of dept. GE for lang course.			

<b>1102</b>	<b>Swedish II</b>	<b>U</b>	<b>4</b>
Continued development of Swedish language skills and knowledge for effective communication. Emphasis on more advanced language structures and on more nuanced cultural issues. Not open to native speakers of this language through regular course enrollment or EM credit. Prereq: A grade of C- or above in 1101. Not open to students with 102.01 and 103.01. GE for lang course. FL Admis Cond course.			
<b>1103</b>	<b>Swedish III</b>	<b>U</b>	<b>4</b>
Development of skills necessary for the independent use of Swedish. Discussions, presentations, writing and listening/viewing activities address topics of contemporary Sweden. Prereq: Grade of C- or better in 1102. Not open to students with credit for 103.01, 104.01, or to native speakers of this language through regular course enrollment or EM credit. GE for Lang Course. FL Admis Cond Course.			
<b>2101</b>	<b>Texts and Contexts: Contemporary Swedish Language, Culture, and Society</b>	<b>U</b>	<b>3</b>
Development of communication skills and knowledge about recent social, political, and cultural developments in Sweden through texts, media, and film. Prereq: Grade of C- or better in Swedish 1103. Not open to students with credit for 201. FL Admis Cond course.			

## Technical Physics

<b>1150T</b>	<b>Technical Physics</b>	<b>U</b>	<b>5</b>
Principles and applications of forces, motion, energy, matter, heat, thermodynamics, electricity, mechanical waves, and electromagnetic radiation. Prereq: GenMath 1145T (145T) or Math 1148 (148) with a grade of C- or better. Not open to students with credit for 101T or 102T. This course is available for EM credit.			
<b>2194T</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.			

## Theatre

<b>2000.02</b>	<b>Technical Production Practicum: Sound</b>	<b>U</b>	<b>1</b>
Provides experience in technical production activities. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2000.03</b>	<b>Technical Production Practicum: Video</b>	<b>U</b>	<b>1</b>
Provides experience in technical production activities. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2000.04</b>	<b>Technical Production Practicum: Scenic Construction and Painting</b>	<b>U</b>	<b>1</b>
Provides experience in technical production activities. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2000.05</b>	<b>Technical Production Practicum: Costuming</b>	<b>U</b>	<b>1</b>
Provides hands-on experience in practical costuming skills, such as fabric preparation, machine and hand sewing, costume maintenance, and costume crafts while working collaboratively and communicating professionally with a variety of artists involved in the theatrical production process. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2000.06</b>	<b>Technical Production Practicum: Lighting</b>	<b>U</b>	<b>1</b>
Provides training and experience in lighting production activities. Students learn to hang & focus lights & delve into associated technology. This laboratory meets irregularly; students are required to complete 42 hours of work across the semester and attendance at scheduled weekend lighting load-ins is required. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2000.09</b>	<b>Technical Production Practicum: General</b>	<b>U</b>	<b>1</b>
Provides experience in technical production activities. Prereq: Not open to students with credit for 205.			
<b>2000.11</b>	<b>Technical Production Practicum: Box Office</b>	<b>U</b>	<b>1</b>
Provides experience in technical production activities. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>2000.12</b>	<b>Technical Production Practicum: Self Production</b>	<b>U</b>	<b>½ - 1</b>
Provides training and experience in self-production of theatrical events. Repeatable to a maximum of 3 cr hrs or 6 completions.			
<b>2000.21</b>	<b>Technical Production Practicum: Publicity</b>	<b>U</b>	<b>1</b>
Provides experience in technical production activities. Repeatable to a maximum of 6 cr hrs or 6 completions.			

## 442 Theatre

<b>2100</b>	<b>Introduction to Theatre</b>	<b>U</b>	<b>3</b>
A study of the art and profession of theatre, with an emphasis on evaluating and appreciating live performance, theatre's cultural importance, and its relationship to issues of social diversity. Students study performance conventions, texts, & spaces from ancient times to present day. While not an acting class, students get firsthand experience in the collaborative process of theatre creation. Prereq: Not open to students with credit for 2100H or 2101H. GE VPA and diversity soc div in the US course.			
<b>2100H</b>	<b>Introduction to Theatre</b>	<b>U</b>	<b>3</b>
A study of the art and profession of live theatre with emphasis upon its cultural and social influences in our society. Prereq: Honors standing or permission of instructor. Not open to students with credit for 2101H (101H), 100, or 100H. GE VPA and diversity soc div in the US course.			
<b>2110</b>	<b>Script Analysis</b>	<b>U</b>	<b>3</b>
Fundamental principles for intensive study of the theatrical script as the basis for actor training, performance and production. Prereq: 2100 or 2101H. Not open to students with credit for 210.			
<b>2211</b>	<b>Introduction to Production Design</b>	<b>U</b>	<b>3</b>
Introduction to scenic, costume, lighting and sound design techniques for production; experience in research and designing projects.			
<b>2341H</b>	<b>Moving Image Art</b>	<b>U</b>	<b>3</b>
The issues and concepts fundamental to the development of an understanding of the aesthetics of film and video from the standpoint of the producer and maker. Prereq: Honors standing or by permission of instructor. Not open to students with credit for 230H. GE VPA course.			
<b>2351</b>	<b>Fundamentals of Radio and TV Production</b>	<b>U</b>	<b>3</b>
Broadcasting techniques, skills and styles. Prereq: Not open to students with credit for 580.			
<b>2367.01</b>	<b>Self Images: America on Stage, 1830 to the Present</b>	<b>U</b>	<b>3</b>
Exploration of the images of Americans presented on popular stages through written analysis of theatrical and critical texts. Prereq: English 1110, and Soph standing or above. Not open to students with credit for 2367. GE writing and comm course: level 2 and diversity soc div in the US course.			
<b>2367.01H</b>	<b>Self Images: America on Stage, 1830 to the Present</b>	<b>U</b>	<b>3</b>
Exploration of the images of Americans presented on popular stages through written analysis of theatrical and critical texts. Prereq: Honors and Soph standing, and English 1110 or equiv. Not open to students with credit for 2367 (367). GE writing and comm course: level 2 and GE diversity soc div in the US course.			
<b>2367.02</b>	<b>African American Theatre History</b>	<b>U</b>	<b>3</b>
Examination of aesthetic and sociological evolution in America of African American theatre, literature, and film. Prereq: English 1110 (110) or equiv, and Soph, Jr, or Sr standing. Not open to students with credit for 2367 (367). GE writing and comm course: level 2 and lit and diversity soc div in the US course.			
<b>2367.03</b>	<b>Criticizing Television</b>	<b>U</b>	<b>3</b>
Study of theatre history at an intermediate level with emphasis on writing skills. A critical analysis of a wide variety of television programs through viewing, discussing, reading, and writing. Prereq: English 1110 (110) or equiv, and Soph, Jr, or Sr standing. Not open to students with credit for 2367.xx (367.xx) or ArtEduc 2367.03 (367.03). GE writing and comm course: level 2 and diversity soc div in the US course. Cross-listed in ArtEduc.			
<b>2811</b>	<b>The Craft of Acting</b>	<b>U</b>	<b>3</b>
An introductory acting class exploring the basic techniques of imagination, concentration, character development, and script analysis through work on monologues, scenes, and plays. Prereq: Not open to students with credit for 280. GE VPA course.			
<b>3000</b>	<b>Production Run Crew Practicum</b>	<b>U</b>	<b>1 - 2</b>
Hands-on involvement in the production of live theatre; participation leading to a more thorough understanding of theatre and in particular theatre design and technology. Repeatable to a maximum of 8 or hrs or 4 completions.			
<b>3111</b>	<b>Stage Directing</b>	<b>U</b>	<b>3</b>
An introduction to the basic principles, techniques and challenges of directing for the stage. Prereq: 2811.			
<b>3221</b>	<b>Stage Management</b>	<b>U</b>	<b>3</b>
Principles, practices, and techniques of stage management, and a survey of modern management techniques. Prereq: 2211. Not open to students with credit for 602.			
<b>3241</b>	<b>Theatre Sound Techniques</b>	<b>U</b>	<b>3</b>
An examination of the art of sound design as well as an exploration of the craft of sound engineering for theatre. Prereq: 2211. Not open to students with credit for 626.			

<b>3351</b>	<b>Television Production I</b>	<b>U</b>	<b>3</b>
Fundamentals of television broadcasting through lectures, labs and practicum involvement with OSU's student television station and media lab. Prereq: Not open to students with credit for 300.			
<b>3352</b>	<b>Television Production II</b>	<b>U</b>	<b>3</b>
Intermediate level course providing students with in depth study of television broadcasting through lectures, labs, and practicum involvement with OSU's student television and media lab. Prereq: 3351 (300).			
<b>3411</b>	<b>Introduction to Scenic Design</b>	<b>U</b>	<b>3</b>
Introduction to basic design elements for the stage including research, sketching, color theory, model building, drafting and stagecraft. Prereq: 2211. Not open to students with credit for 220.			
<b>3511</b>	<b>Introduction to Costume Design</b>	<b>U</b>	<b>3</b>
Fundamental exploration of methods of design and production as applies to costumes. Prereq: 2211. Not open to students with credit for 222.			
<b>3551</b>	<b>Stage Make-Up</b>	<b>U</b>	<b>3</b>
Practical application of theories and techniques of make-up design. Emphasis on presentational styles. Purchase of make-up kit required. Prereq: 2211. Not open to students with credit for 353.			
<b>3597</b>	<b>Issues of the Contemporary World: Censorship and Performance</b>	<b>U</b>	<b>3</b>
Exploration of censorship in live performance in both Western and non-Western communities and the ways such practice links to governmental public policy or to pressure groups. Prereq: Jr or Sr standing. GE cross-disciplinary seminar course.			
<b>3611</b>	<b>Introduction to Lighting Design</b>	<b>U</b>	<b>3</b>
Introduction to basic lighting design elements for the stage including research, collaboration, basic electrical practice, color theory, drafting, and lighting stage work. Prereq: 2211. Not open to students with credit for 221.			
<b>3731</b>	<b>History of Performance I</b>	<b>U</b>	<b>3</b>
Survey of representative theatre and performance from Western and non-Western traditions from ancient times to the late 1700s. Prereq: 2100, 2100H, or 2101H.			
<b>3732</b>	<b>History of Performance II</b>	<b>U</b>	<b>3</b>
In this course, we will delve into the history of theatre from 1780 to the present. Attention will be paid to global contexts, theatrical texts, as well as the history of the crafts of theatrical design, directing, and acting. Prereq: 2100, 2100H, or 2101H.			
<b>3812</b>	<b>Acting Studio I: Stanislavski</b>	<b>U</b>	<b>3</b>
An intermediate acting studio exploring the Stanislavski basic acting technique of given circumstances, intentions, obstacles and strategies, in exercises, scenes and discussion. Prereq: 2811 (280). Not open to students with credit for 2812 or 380.			
<b>3813</b>	<b>Acting Studio II: Contemporary Scene</b>	<b>U</b>	<b>3</b>
An intermediate acting studio focusing on scene study and dramatic analysis, utilizing contemporary plays, and studying current playwrights. Prereq: 2811 (280). Not open to students with credit for 2813 (381).			
<b>3814</b>	<b>Acting Studio III: Special Topics</b>	<b>U</b>	<b>3</b>
An advanced acting studio focused on various acting topics, techniques, and approaches. Topics may include Shakespeare, improvisation, period styles, and others. Prereq: 2811, and permission of instructor. Not open to students with credit for 382. Repeatable to a maximum of 9 or hrs.			
<b>3815</b>	<b>Acting for the Camera</b>	<b>U</b>	<b>3</b>
An advanced acting class focusing on the specific challenges of acting for the camera. Prereq: 2811, and permission of instructor.			
<b>3821</b>	<b>Accents and Dialects</b>	<b>U</b>	<b>3</b>
The fundamentals of acquiring dialects for the stage. Prereq: 2811.			
<b>3825</b>	<b>Special Topics in Voice for the Stage</b>	<b>U</b>	<b>3</b>
An advanced voice studio exploring various topics including individual voice study, phonetics, vocal design, verbatim theatre, and others. Prereq: 2811 and 3831, or permission of instructor.			
<b>3831</b>	<b>Movement and Voice</b>	<b>U</b>	<b>3</b>
Basic study and training in movement for actors, voice production, and whole body expressiveness. Prereq: 2811. Not open to students with credit for 2831, or 383 and 386.			
<b>3832</b>	<b>Viewpoints Training</b>	<b>U</b>	<b>3</b>
Introduction to Viewpoints Training: A method of improvisation that builds ensembles, strengthens physical range, and develops acting, directorial and choreographic skills. Prereq: 2811 and 3831, or permission of instructor. Not open to students with credit for 2832.			

<b>3921S</b>	<b>Creation of Outreach Theatre</b>	<b>U</b>	<b>3</b>
The creation, development and performance of interactive and instructional theatre for social awareness. Repeatable to a maximum of 6 cr hrs.			
<b>4000.01</b>	<b>Practicum: Stage Management</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Not open to students with credit for 405.01. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.02</b>	<b>Practicum: Sound</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.03</b>	<b>Practicum: Video</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.04</b>	<b>Practicum: Stage Design</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.05</b>	<b>Practicum: Costuming &amp; Makeup</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.06</b>	<b>Practicum: Lighting</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.07</b>	<b>Practicum: Dramaturgy</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.08</b>	<b>Practicum: Acting</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor, by audition. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.09</b>	<b>Practicum: General</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.11</b>	<b>Practicum: Theatre Management</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.14</b>	<b>Practicum: Technical Direction</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4000.18</b>	<b>Practicum: Directing</b>	<b>U</b>	<b>1 - 3</b>
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 8 completions.			
<b>4191</b>	<b>Internship in Theatre</b>	<b>U</b>	<b>1 - 12</b>
A cooperative education or internship assignment conducted under the supervision of a faculty member. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 3 completions. This course is graded S/U.			
<b>4194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Group studies. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>4381</b>	<b>Narrative Filmmaking Fundamentals</b>	<b>U</b>	<b>3</b>
This course provides a foundation in the conceptual and technical building blocks of cinematic narrative, emphasizing collaborative projects. Students will investigate the nature of event, character, and place, developing their production and post-production skills in composition, camera movement, lighting, editing, and sound design to support and enhance storytelling. Prereq: Permission of instructor.			
<b>4821</b>	<b>Singing Actor</b>	<b>U</b>	<b>3</b>
The fundamentals of acting through song. Prereq: 2811.			

<b>4921S</b>	<b>Performance Studies in Outreach Theatre</b>	<b>U</b>	<b>3</b>
Use of improvisational acting techniques to develop the performance of an outreach touring theatre production. Prereq: Permission of instructor, by audition. Repeatable to a maximum of 6 cr hrs.			
<b>4998</b>	<b>Undergraduate Scholarship: Research and Creative Activity in Theatre</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research or creative activities in varying topics leading towards a creative project without a thesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4998H</b>	<b>Undergraduate Scholarship: Research and Creative Activity in Theatre</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research or creative activities in varying topics leading towards a creative project without a thesis. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Thesis Scholarship: Research and Creative Activity in Theatre</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research or creative activities in varying topics that will lead to a thesis. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>4999H</b>	<b>Undergraduate Honors Thesis Scholarship: Research and Creative Activity in Theatre</b>	<b>U</b>	<b>1 - 12</b>
Undergraduate research or creative activities in varying topics that will lead towards an Honors thesis. Prereq: Honors standing and permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5111</b>	<b>Advanced Stage Directing</b>	<b>U G</b>	<b>3</b>
Principles, techniques and practices of advanced stage directing with an emphasis on text analysis, research and process. Prereq: 3111 (310). Not open to students with credit for 610.			
<b>5177</b>	<b>Alexander Technique</b>	<b>U G</b>	<b>1 - 2</b>
The relationship of kinesthetic perception and the postural reflexes to physical coordination in performance. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs or 4 completions. Cross-listed in Dance and Music.			
<b>5189</b>	<b>Field Work in Theatre, Cinema, or Video</b>	<b>U G</b>	<b>1 - 12</b>
Planned production or management experience in an off-campus professional, educational, community theatre, film or video facility, or other agency under supervision. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Individual Studies</b>	<b>U G</b>	<b>1 - 3</b>
Conference, library, and laboratory work. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 3</b>
Group Studies. Repeatable to a maximum of 12 cr hrs or 4 completions.			
<b>5210</b>	<b>Drafting &amp; Modeling for Theatre</b>	<b>U G</b>	<b>3</b>
An introduction to digital drafting and modeling techniques with an emphasis on design for theatre production; exploration of CAD drafting in 2D and 3D as well as 3D modeling and rendering; enlisting different software applications and methods of integrating them.			
<b>5220</b>	<b>Professional Aspects</b>	<b>U G</b>	<b>3</b>
Study of the professional theatre as a business; contracts, unions, the theatre marketplace; preparation of resumes, portfolios, audition pieces, interview. Prereq: Not open to students with credit for 600.			
<b>5225</b>	<b>Period Styles for Production</b>	<b>U G</b>	<b>3</b>
An exploration of period styles from ancient to contemporary; emphasis on architecture, clothing, furniture, jewelry, textiles, and decorative objects.			
<b>5241</b>	<b>Topics in Sound Technology</b>	<b>U G</b>	<b>3</b>
An exploration of topics on theatrical sound including audio system form and function, live mix, aesthetics of sound, audio engineering and theatrical sound design. Prereq: 3241 or 5212. Repeatable to a maximum of 9 cr hrs.			
<b>5305</b>	<b>Painting and Drawing for Theatre</b>	<b>U G</b>	<b>3</b>
An introduction to drawing and painting techniques using both physical and digital media; exploration of methods, media, concepts; emphasis on rendering for theatre design.			
<b>5310</b>	<b>Fundamentals of Media Design</b>	<b>U G</b>	<b>3</b>
A foundational introduction to the skills, tools, best practices, collaborative processes, and theories for media and projection design in a live performance production environment. Prereq: 2211, or permission of instructor.			

## 444 Theatre

**5321 Film/Video Production I** U G 3

Basics of film/video production through lectures, analysis, and projects. Camera, sound, lighting, and editing techniques are practiced in collaborative and individual settings. Prereq: Permission of instructor. Not open to students with credit for 634.

**5322 The Art of Editing** U G 3

Exploration of post-production techniques from editorial concepts to outputting video. Students will expand their knowledge of the editorial process and their analytical skills. Prereq: 5321 and permission of instructor. Not open to students with credit for 633.

**5323 Film/Video Production II** U G 3

Intermediate film/video analysis and production through research and project assignments with camera, sound, lighting, and editing techniques. Prereq: 5321, or permission of instructor. Repeatable to a maximum of 9 cr hrs.

**5325 The Film Director's Voice** U G 3

This advanced-level course offers students an understanding of the fundamentals of directing narrative film, with an emphasis on the director's personal voice and vision. It considers responsibilities and techniques across all stages of production, from early development through the completion of postproduction, as well as an introduction to promoting your finished project. Prereq: 4381 and 5323, or permission of instructor.

**5331 Screenwriting** U G 3

Exploration of creative script-writing for video/cinema; development of short or feature length scripts. Prereq: Permission of instructor. Not open to students with credit for 636.

**5341 Studies in the Documentary** U G 3

Exploration of the conceptual, aesthetic, critical, social, ethical, and practical issues in the practice of documentary and reality production of cinema and video works. Prereq: Permission of instructor. Not open to students with credit for 777.

**5401 Engineering for Entertainment** U G 3

An introduction to the technology and engineering behind theatre and entertainment events; focus on motion technology including rigging, tracking and automated systems.

**5403 Scene Painting** U G 3

An introduction to techniques used in scene painting for the theatre; rendering textures and form on large scale surfaces, both fabric and board; trompe l'oeil and reproductions. Prereq: Enrollment in the MFA-Theatre program, or permission of instructor.

**5411 Scenic Design I** U G 3

Presentation of scenic design in three dimensional model form; emphasis on designing for non-proscenium production. Prereq: Not open to students with credit for 643.

**5412 Scenic Design II** U G 3

Presentation of multiple-setting, scenic design in three dimensional models, renderings and sketches; emphasis on story boarding to show clear progression of scenic changes. Prereq: Not open to students with credit for 644.

**5501 Costume Technology** U G 3

This course is a costume construction course intended to acquaint the student with intermediate skills in creating theatrical clothing. Basic understanding of hand and machine sewing is expected. Demonstrations of fabric dyeing in addition to an introduction to the creation of craft accessories are included.

**5502 Costume Draping & Patterning** U G 3

This is a practical course designed to allow the student to learn to manipulate fabric over a form to create a pattern. Basic contemporary forms are emphasized, with final projects focusing on 20th century period garments.

**5503 Advanced Costume Technology** U G 3

This course emphasizes advanced sewing skills: particularly those involved with men's and women's tailored garments.

**5511 Costume Design I** U G 3

Exploration of methods and techniques of design as applies to costumes.

**5512 Costume Design II** U G 3

This course is an in depth study of advanced projects in Costume Design with an emphasis on musical theatre.

**5603 Lighting Technology** U G 3

An introduction to and examination of the craft of theatre technology, with an emphasis on technical projects as associated with the responsibilities of a production electrician.

**5611 Lighting Design** U G 3

A study of light as a design element for theatrical performance; analysis and preparation of designs for realized and theoretical theatre applications. Prereq: Not open to students with credit for 625.

**5720 Dramaturgy: Theory and Practice** U G 3

Survey of history, theory, and practical exercises in production dramaturgy, the art of interrogating plays in production.

**5731 London Theatre and Culture** U G 2

This course prepares students for the London Theatre Program study abroad experience at Ohio State. Repeatable to a maximum of 6 ch hrs.

**5741 Czech Theatre and Culture** U G 3

An introduction to the language, history, and culture of the Czech Republic designed to prepare students for an international experience. The course is a combination of instructor led lectures, discussions and presentations including a wide variety of Czech visual materials, and is a prerequisite for students participating in the Prague Theatre Study Tour Program. Prereq: 2100 (100), and acceptance to the Prague Theatre Study Tour, and permission of instructor. Repeatable to a maximum of 9 cr hrs.

**5751 Performance and Culture in Cuba** U G 2

This course explores culture in Cuba, past and present, with emphasis on the performing and visual arts. We consider the important historical, economic, and political contexts that inform Cuban arts today.

**5771.01 The History and Practice of Devising Theatre** U G 3

Advanced study on the history of creating new performance works through the collaborative, collective artistic process of devising.

**5771.02 Theatre for Social Change** U G 3

Advanced study of theatre and performance strategies used for social change and community engagement which includes Theatre for Development, and Augusto Boal's theory and practice.

**5771.03 Out There Alone: The History of Solo Performance** U G 3

Advanced study of the ubiquitous solo performer that considers the classical Greek rhapsodies, to Chautauqua, to contemporary solo artists, many of whom create new works.

**5771.04 American Voices** U G 3

Advanced study of a focused theatre history topic such as African American, Latino/a, Asian American, Native American, women playwrights, and gay and lesbian theatre.

**5771.05 All Singing, All Dancing: The History of Musical Theatre** U G 3

Advanced study on the history and contemporary practice of the art form of musical theatre including an emphasis on the American Rock Musical.

**5771.06 International Theatre and Performance** U G 3

Advanced study of a focused international theatre history topic such as African, Spanish and Portuguese, Asian theatre, theatre masks, puppets, Irish diaspora.

**5771.09 Performance in Media: Film, Video and Digital** U G 3

Advanced study on the history and contemporary practice of technology and media used in contemporary live performance, such as moving lights, projections, film, video and digital animation.

**5771.10 Strutting and Fretting Upon the Stage: 400 Years of Shakespeare in Production** U G 3

Explores the history of Shakespeare's plays in production over the last four centuries. Students will seek to understand how his plays reflect the historical moments in which they are interpreted. Students will research and present on a specific production.

**5798.01 Study Tour: Domestic** U G 1 - 12

Group domestic travel experience. Specific content, location, prerequisites, and semester of offering vary. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 4 completions.

**5798.02 Study Tour: International** U G 1 - 12

Group foreign travel experience. Specific content, location, prerequisites, and semester of offering vary. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 4 completions.

**5831 Mime** U G 3

Introduction to Mime: This course will focus on Etienne Decroux and Marcel Marceau's techniques and styles. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 2 completions.

**5835 Special Topics in Movement for the Stage** U G 3

Intensive study of a problem related to movement of the actor for the purpose of developing specific principles and practices. Prereq: 3831 (2831), or permission of instructor. Repeatable to a maximum of 9 cr hrs.

**5899 Workshops** U G 1 - 12

Intensive study of a problem common to the participants for the purpose of developing principles and practices relating to it. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 4 completions.

**5911 New Works Lab** U G 3

New writers experiment with a variety of contemporary techniques to write, act, direct and improv short plays, oral histories, video and solo works. Repeatable to a maximum of 6 cr hrs or 2 completions.

5921	<b>Performing and Teaching Shakespeare for the Actor: A Toolkit</b>	U G	3
An exploration of methods for interpreting, performing, and teaching Shakespeare. Emphasis on Stand Up for Shakespeare technique, the work of John Basil, John Barton, and the Lessac voice system. Students will develop exercises and lessons intended for K-12 students. Prereq: 2831 (383), or permission of instructor.			
5922S	<b>Shakespeare and Autism</b>	U G	3
An ensemble-based interdisciplinary service-learning course where students are trained in the Hunter Heartbeat Method intervention and then conduct interactive workshops with children on the autism spectrum. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.			
5961	<b>Playwriting</b>	U G	3
Students will write 10-minute plays as exploratory exercises, analyze contemporary plays to deepen familiarity with the theatrical form, and, as a final project, write a one-act play which will receive a staged reading. Seminar and Workshop.			
5971	<b>Adaptation</b>	U G	3
In various guises (translation, revision, revival, recycling, burlesque, travesty, parody, adaptation, theft) the stage has long been a site of mythological and textual reiteration. The course examines the ways in which a select group of texts have found their ways onto the English-speaking stage again and again. The course contextualizes adaptation as a theatrical practice elemental to cultures. Prereq: Permission of instructor.			
6194	<b>Group Studies</b>	G	1 - 3
Group Studies. Repeatable to a maximum of 12 cr hrs or 4 completions.			
6210	<b>Studio Praxis</b>	G	3
This is a topics-based, design/scenography class that challenges students to share and build on their experience both within and outside their design disciplines. All MFA design students will participate in the studio each fall semester. Our goal is for you to make work that quickly and creatively respond to the ideas and scripts we work on which hang together under a different theme each year. Prereq: Enrollment in the MFA-Theatre program, or permission of instructor. Repeatable to a maximum of 9 cr hrs.			
6431	<b>Stage Properties</b>	G	1½
Exploration of scenic/design technology topics including stage properties, advanced scene painting, surface treatments. Prereq: Not open to students with credit for 646.			
6651	<b>Digital and Physical Lighting</b>	G	4
Introduction to basic principles and concepts of lighting as used in theatre and computer graphics. Working in collaborative teams, students develop and execute installation schemes. Prereq: Permission of instructor. Not open to students with credit for 754. Cross-listed in ArtsCol.			
6701	<b>Research Methods</b>	G	2 - 4
Introduction to research methods, tools, and resources in live theatre and recorded performance, and directed research in student's area of focus. Prereq: Not open to students with credit for 801. Repeatable to a maximum of 4 cr hrs.			
6702	<b>Theatre Pedagogy</b>	G	3
In this course, we will delve into teaching our discipline on the college level. We will explore best practices, strategies, techniques, and key concerns in our field. We will develop teaching philosophies and portfolios to aid on the job market, but more importantly, we will demonstrably improve our ability to impact our students' lives.			
6811	<b>Advanced Acting Studio I</b>	G	3
A graduate acting class focused on exploring basic realistic acting techniques. Prereq: Not open to students with credit for 780.			
6812	<b>Advanced Acting Studio II</b>	G	3
A graduate acting class focused on Shakespeare and period styles. Prereq: Not open to students with credit for 781.			
6813	<b>Advanced Acting Studio III</b>	G	3
A graduate acting class focused on contemporary non-realistic acting and acting for the camera. Prereq: Not open to students with credit for 782.			
6821	<b>Foundational Skills in Voice</b>	G	3
A graduate course in voice production for the theatre. Prereq: Permission of instructor. Not open to students with credit for 786.			
6831	<b>Mime and Stage Combat</b>	G	3
Focus on Etienne Decroux and Marcel Marceau's techniques and styles and include techniques of Stage Combat. Prereq: Permission of instructor. Not open to students with credit for 685 and 687.			
6999	<b>Research in Theatre: Thesis</b>	G	1 - 4

Research for thesis purposes only.  
Repeatable to a maximum of 16 cr hrs or 4 completions. This course is graded S/U.

7000.03	<b>Practicum: Video</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.04	<b>Practicum: Stage Design</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.05	<b>Practicum: Costuming &amp; Makeup</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.06	<b>Practicum: Lighting</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.07	<b>Practicum: Dramaturgy</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.08	<b>Practicum: Acting</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor by audition. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.09	<b>Practicum: General</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7000.18	<b>Practicum: Directing</b>	G	1 - 5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
7215	<b>TRI Special Collections Research</b>	G	3
Advanced study of primary research materials accessed in the Special Collections: Jerome Lawrence and Robert E. Lee Theatre Research Institute Design archives.			
7311	<b>Advanced Moving Image Art</b>	G	3
Exploration of sketchbook approach to research and development of creative cinema/video projects. Prereq: Permission of instructor. Not open to students with credit for 813.			
7413	<b>Advanced Scene Design</b>	G	3
Advanced exploration of scene design for Broadway style musicals and Opera; emphasis on conceptual development, utilizing scale, large financial and production resources, fluid transitions and the expanded production demands of these forms.			
7513	<b>Advanced Costume Design</b>	G	3
Advanced exploration of costume design for high concept performance pieces in opera, dance and theatre, hands-on design assignments, and preparation of theoretical designs.			
7613	<b>Advanced Lighting Design</b>	G	3
Advanced topics in lighting design, including music-based performance, study of lighting designers and the art and craft of design, hands-on design assignments, and preparation of theoretical designs.			
7701	<b>Greek, Roman and Medieval Theatre and Performance: History, Literature and Theory</b>	G	4
Advanced study and directed research in Greek, Roman, Medieval performance texts, criticism and history.			
7702	<b>Early Modern to the Enlightenment: Theatre, Performance, Theory, Text</b>	G	4
Advanced study and directed research in early modern to Enlightenment theatre, performance, theory and criticism.			
7703	<b>Mass Entertainment, Modernism and the Rise of Realism</b>	G	4
Advanced study of popular entertainment in the mid to late 19th century, the rise of realism, performance, theory and criticism.			
7704	<b>Contemporary Theatre and Performance: Experimentation and New Media</b>	G	4
Advanced study of contemporary performance with particular focus on the Wexner Center for the Arts season, including New Works and New Media, theory and criticism.			

## 446 Theatre

<b>7710</b>	<b>Method: Historiography</b>	<b>G</b>	<b>3</b>
In this course, we will explore the ways theatre and performance history have been (and could be) written. Attention will be paid to the roles of evidence, embodiment, and narrative. Throughout we will ask the question: how can we write a history of an evanescent art? To what end?			
<b>7720</b>	<b>Method: Performance Studies</b>	<b>G</b>	<b>3</b>
Performance Studies has been described as a marriage of Theater and Anthropology, yet it is both more and less than those two disciplines. We will read foundational texts by its major figures, as well as familiarize ourselves with its newer voices. Students will create a practical project that allows them to apply the methodologies we study, including participant-observation ethnography.			
<b>7730</b>	<b>Method: Practice As Research</b>	<b>G</b>	<b>3</b>
In this course, we will delve into the method of practice as research as it pertains to the field of theatre studies. We will read key texts in the field, grapple with approaches, and undertake projects that prioritize practice as research acuity.			
<b>7821</b>	<b>Advanced Dialects</b>	<b>G</b>	<b>3</b>
Dialect analysis and acquisition for the theatre. Prereq: Not open to students with credit for 880.			
<b>7831</b>	<b>Advanced Movement</b>	<b>G</b>	<b>3</b>
Fundamentals of movement for actors: Studies in how the body (the actor's instrument) works and how the body moves. Prereq: Not open to students with credit for 781 and 887.			
<b>7832</b>	<b>Viewpoints and Suzuki Physical Acting</b>	<b>G</b>	<b>3</b>
Viewpoints training: Method of improvisation that builds ensembles, while strengthening acting, directing and choreography. Suzuki, a martial arts style of physical training, will be incorporated. Prereq: Not open to students with credit for 773 and 887.			
<b>7899.02</b>	<b>New Media and Performance</b>	<b>G</b>	<b>2 - 4</b>
Special Topics Seminar in New Media and Performance. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>7899.03</b>	<b>Dramatic Literature</b>	<b>G</b>	<b>2 - 4</b>
Special Topics Seminar in Dramatic Literature. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>7899.04</b>	<b>Performance Studies</b>	<b>G</b>	<b>2 - 4</b>
Special Topics Seminar in Performance Studies. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>7899.05</b>	<b>Physical and Devised Theatre</b>	<b>G</b>	<b>2 - 4</b>
Special Topics Seminar in Physical and Devised Theatre. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>7899.07</b>	<b>Special Topics: Theatre History</b>	<b>G</b>	<b>2 - 4</b>
Special Topics Seminar in Theatre History. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>7911</b>	<b>Composition</b>	<b>G</b>	<b>3</b>
Advanced instruction in learning multiple ways of creating new performance work. Prereq: Not open to students with credit for 888.			
<b>8000.02</b>	<b>Advanced Studies: Sound</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Sound. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.03</b>	<b>Advanced Studies: Video</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Video. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.04</b>	<b>Advanced Studies: Stage Design</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Stage Design. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.05</b>	<b>Advanced Studies: Costuming &amp; Makeup</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Costuming and Makeup. Prereq: Permission of Instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.06</b>	<b>Advanced Studies: Lighting</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Lighting. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.07</b>	<b>Advanced Studies: Dramaturgy</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Dramaturgy. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.08</b>	<b>Advanced Studies: Acting</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Acting. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.09</b>	<b>Advanced Studies: General</b>	<b>G</b>	<b>1 - 5</b>
General. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			

<b>8000.17</b>	<b>Advanced Studies: Criticism</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Criticism. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.18</b>	<b>Advanced Studies: Directing</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Directing. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.27</b>	<b>Advanced Studies: Theory</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Theory. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.37</b>	<b>Advanced Studies: History</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in History. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.46</b>	<b>Advanced Studies: Playwriting</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Playwriting. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8000.47</b>	<b>Advanced Studies: Dramatic Literature</b>	<b>G</b>	<b>1 - 5</b>
Advanced Studies in Dramatic Literature. Prereq: Permission of instructor. Repeatable to a maximum of 32 cr hrs or 8 completions.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 3</b>
Conference, library, and laboratory work. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is graded S/U.			
<b>8621</b>	<b>Advanced Topics in Lighting Technology</b>	<b>G</b>	<b>2 - 4</b>
Practical application of theories and techniques of lighting technology, with an emphasis on moving (or automated) lighting equipment, data, and control systems. Repeatable to a maximum of 12 cr hrs or 3 completions.			
<b>8700.01</b>	<b>Candidacy Exam Preparation: Area of Specialization</b>	<b>G</b>	<b>1 - 4</b>
Preparation for PhD candidacy examination in the student's area of specialization to be undertaken in tutorial with their faculty advisor.			
<b>8700.02</b>	<b>Candidacy Exam Preparation: Cognate Area 1</b>	<b>G</b>	<b>1 - 4</b>
Preparation for PhD candidacy examination in the student's area of specialization to be undertaken in tutorial with their faculty advisor.			
<b>8700.03</b>	<b>Candidacy Exam Preparation: Cognate Area II</b>	<b>G</b>	<b>1 - 4</b>
Preparation for PhD candidacy examination in the student's Cognate Area II to be undertaken in tutorial with their faculty advisor.			
<b>8798.02</b>	<b>Study Tour: International</b>	<b>G</b>	<b>1 - 12</b>
Group international travel experience. Specific content, location, prerequisites, and semester of offering vary. Prereq: Permission of instructor. Repeatable to a maximum of 36 cr hrs or 4 completions.			
<b>8811</b>	<b>Advanced Acting Studio IV</b>	<b>G</b>	<b>3</b>
A Graduate acting class focused on developing a professional Showcase. Prereq: Not open to students with credit for 982.			
<b>8911</b>	<b>Devising: Techniques of Creating New Work</b>	<b>G</b>	<b>3</b>
Laboratory in performer-created works with a director/choreographer. Creation of solo and group works from multiple sources, giving equal value to text, action and movement. Prereq: Not open to students with credit for 987.01.			
<b>8912</b>	<b>Solo Projects</b>	<b>G</b>	<b>3</b>
Laboratory in solo performer-created works. Repeatable to a maximum of 27 cr hrs.			
<b>8921</b>	<b>Outreach and Engagement</b>	<b>G</b>	<b>3</b>
Exploration of the collaborative outreach and engagement process in the development of an original ensemble creation which will emphasize community themes. Repeatable to a maximum of 9 cr hrs.			
<b>8990</b>	<b>Directed Teaching Experience in Theatre</b>	<b>G</b>	<b>1 - 3</b>
Designed to aid the prospective teacher of theatre in the development of essential teaching skills in a variety of settings. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions.			
<b>8995</b>	<b>Proseminar</b>	<b>G</b>	<b>1 - 5</b>
Reading, directed study, and/or projects in theatre history, criticism, literature, acting, directing, and/or design. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 9 completions. This course is graded S/U.			
<b>8999</b>	<b>Research in Theatre: Dissertation</b>	<b>G</b>	<b>1 - 3</b>
Research for dissertation purposes only. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 9 completions. This course is graded S/U.			



## Translational Data Analytics 447

**5401 Data Analytics Foundations I** U G 3

The successful working professional must be able to extract useful information from data to address work-related challenges and make data-driven decisions under uncertainty. Proficiency in identifying, sourcing, manipulating and interpreting data is key. This is the first of a two course sequence focusing on programming and analysis in R, taken in parallel with Big Data Computing Foundations.  
Prereq: Enrollment in the Translational Data Analytics program.

**5402 Data Analytics Foundations II** U G 3

This is the second part of a two-semester sequence focusing on programming and data analysis using R. Taken along with the Big Data Computing Foundations sequence on CS methods for data science. The course focuses on more advanced R such as distribution theory via simulation methods, statistical modeling: A/B testing, ANOVA, multiple linear regression, logistic regression, multivariate analysis.  
Prereq: 5401, 5621, and enrollment in data analytics major.

**5621 Big Data Computing Foundations I** U G 3

Professionals must be able to locate, scrape, ingest and clean data sources to produce useful information for exploration and visualization to address work-related challenges. Course focus is on programming in Javascript and Python and tools like Hadoop and Scala. This two-semester sequence is to be taken in parallel with a two-semester sequence on fundamental statistical data analytic methods.  
Prereq: Enrollment in the Translational Data Analytics program.

**5622 Big Data Computing Foundations II** U G 3

Working professionals must be able to locate and scrape data sources, create workflows that ingest and clean data, extract useful information for exploration and visualization and use that information to address work-related challenges. Enrollees gain proficiency in identifying, sourcing, manipulating, and interpreting data. Second course in a two-semester sequence focusing on the Python and Spark.  
Prereq: 5621, and enrollment in the Translational Data Analytics program.

**5625 Seminar in Data Governance** U G 1

Demonstrate the need for data governance. Emphasize the need to generate trust in data assets in typical projects and enterprises. Identify elements of good data governance. Discuss privacy and security in the context of data governance. Enumerate the advantages of robust and principled governance through the use of case studies.  
Prereq: Enrollment in the Translational Data Analytics program.

**5626 Seminar in Research Methods** U G 1

This course will provide a high-level overview of general research methods that are common across many disciplines. Topics covered will range from formulating a research question to conducting specific analytical methodologies to writing/presenting results. Course enrollment restricted to graduate students enrolled in MTDA program.  
Prereq: 5401, 5621, and 5625.

### Turkish

**1101 Elementary Turkish I** U 4

Introduction to Turkish; development of listening, reading, speaking, and writing skills.  
Prereq: Not open to native speakers through regular enrollment, or EM credit. This course is available for EM credit. GE for lang.

**1102 Elementary Turkish II** U 4

Further development of listening, writing, speaking, and reading skills; reading of simplified Turkish texts. Not open to native speakers through regular enrollment or EM credit.  
Prereq: 1101. Not open to students with credit for 102. This course is available for EM credit. GE for lang course.

**1103 Intermediate Turkish I** U 4

Reading of Turkish short stories and poems with attention to literary and cultural appreciation; development of basic language skills. Not open to native speakers through regular enrollment or EM credit.  
Prereq: 1102. This course is available for EM credit. GE for lang course.

**2101 Intermediate Turkish II** U 4

Extensive reading from literary texts, with practice in conversation and composition. Not open to native speakers of this language.  
Prereq: 1103. Not open to students with credit for 201.

**2102 Intermediate Turkish III** U 4

The study of nineteenth and twentieth-century texts, with advanced composition and translation.  
Prereq: 2101. Not open to students with credit for 202.

**2193 Individual Studies** U 1 - 5

Individual studies.  
Prereq: Permission of instructor or department. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**2194 Group Studies** U 1 - 5

Group Studies.  
Prereq: Permission of instructor or department. Repeatable to a maximum of 15 cr hrs or 5 completions.

**2241 Beyond Harems and Belly Dancers: Turkish Culture** U 3

An introduction to Turkish culture through reading of literature and criticism, and listening and viewing of films, slides, and performances arranged for the class.  
GE cultures and ideas and diversity global studies course.

**2701 Mystics, Sultans, Prisoners & Dreamers: Turkish Literature in Translation** U 3

A study of Turkish literature and the history of its discourses, genres, and styles.  
GE lit and diversity global studies course.

**3350 Contemporary Issues in Turkey** U 3

This course provides an introduction to contemporary issues in Turkey. Our understanding of current events will be grounded in deep historical, social, and geographic analyses, informed by both local and global dynamics. Most of the class focuses on political, economic, and social issues to help us contextualize current events and issues.  
GE soc sci indivs and groups and diversity global studies course.

**4999H Honors Research** U 1 - 3

A program of research for individual students which includes individual conferences and culminates in an honors thesis or oral defense.  
Prereq: Approved candidacy for graduation with distinction, which includes faculty adviser and ASC Honors Committee approval of project. A minimum 3.5 pt-hr ratio in the field of distinction, Sr standing, and CPHR commensurate with honors program membership. Repeatable to a maximum of 10 cr hrs or 5 completions. This course is graded S/U.

**5193 Individual Studies** U G 1 - 10

Individual Studies.  
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions. This course is graded S/U.

**5194 Group Studies** U G 1 - 10

Group studies.  
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs or 5 completions.

**5377 Turkish Theatre, Music, & Dance** U G 3

Cross-cultural, multidisciplinary exploration of Turkish theatre, music, and dance in Anatolian folk traditions, classical Ottoman works, 20th Century movements, and those of the present day. Students address theoretical questions of Performance Studies with guided research, historical and ethnographic texts, and performance workshops.  
Prereq: Jr, Sr, or Grad standing; or permission of instructor.

**7193 Independent Study** G 1 - 10

Content varies.  
Repeatable to a maximum of 20 cr hrs or 10 completions. This course is graded S/U.

### Urdu

**1101 Elementary Urdu I** U 4

Study of Urdu language, with appropriate cultural background; development of listening, reading, speaking, and writing skills.  
Prereq: Not open to students with credit for 101, or to native speakers through regular enrollment or EM credit. This course is available for EM credit. GE for lang course.

**1102 Elementary Urdu II** U 4

Continued study of Urdu language, with appropriate cultural background; development of listening, reading, speaking, and writing skills.  
Prereq: 1101, or permission of instructor. Not open to students with credit for 102, native speakers, or EM credit. This course is available for EM credit. GE for lang course.

**1103 Intermediate Urdu I** U 4

Continued study of Urdu language, with appropriate cultural background; development of listening, reading, speaking, and writing skills.  
Prereq: 1102, or permission of instructor. Not open to students with credit for 103, 104, or to native speakers or EM credit. This course is available for EM credit. GE for lang course.

### Urology

**4998 Urology Undergraduate Research Course** U ½ - 3

An independent-study style course in which pre-medical undergraduate students have the opportunity to assist in the Department of Urology's research projects. Students will be given the opportunity to learn the research process from start to finish. Students will need to receive a signature to enroll in this course. Not open to students under 18 years of age.  
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs or 8 completions. This course is graded S/U.

### Uzbek

**1101 Elementary Uzbek I** U 4

Introduction to Uzbek language; development of listening, reading, speaking and writing skills.  
Prereq: Not available to native speakers. This course is available for EM credit. GE for lang course.

## 448 Uzbek

**1102 Elementary Uzbek II** U 4

Continued study of Uzbek Language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills. Not open to native speakers. Prereq: 1101. This course is available for EM credit. GE for lang course.

**1103 Intermediate Uzbek I** U 4

Continued study of Uzbek Language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills. Not open to native speakers. Prereq: 1102. This course is available for EM credit. GE for lang course.

**2101 Intermediate Uzbek II** U 4

Extensive reading from literary texts, with practice in conversation and composition. Not open to native speakers. Prereq: 1103.

**2102 Intermediate Uzbek III** U 3

Continued reading from literary texts, with further practice in conversation, composition, and translation. Not open to native speakers. Prereq: 2101.

**3102 Advanced Uzbek** U 3

This course aims: to increase fluency in oral expression; develop skills in listening, reading and writing; extend knowledge of literary Uzbek language; and enable research in Uzbek. Course will use four skills approach as well as communicative. Using authentic language materials (newspapers, journals, TV programs) will be emphasized. Prereq: 2102

## Veterinary Biosciences

**6640 Fundamentals of Oncology** G V 4

Oriented towards graduate students in cancer-related programs, consisting of a series of lectures covering a variety of aspects of experimental oncology. Cross-listed in Pathol.

**7193.01 Individual Studies in Veterinary Biosciences** G V 1 - 8

Laboratory, library, conference, and reports concerning animal disease problems. This course is to be used by Masters students for research experiences and for Doctoral students prior to candidacy. Repeatable to a maximum of 60 cr hrs or 60 completions. This course is graded S/U.

**7193.02 Individual Studies in Veterinary Biosciences** G V 1 - 2

Laboratory, library, conference, and reports concerning animal disease problems. The faculty and student agree on a course project suitable for a letter grade. Prereq: Grad or Prof standing in Veterinary Medicine program, and permission of instructor. Not open to students with credit for 696. Repeatable to a maximum of 5 cr hrs.

**7194.01 Group Studies in Veterinary Biosciences** G V 1

Group studies course in topic areas of veterinary biosciences. Prereq: Grad standing, or standing in VetMed program, or DVM, or equiv. This course is graded S/U.

**7194.02 Group Studies in Veterinary Biosciences** G V 1 - 3

Group studies course in topic areas of veterinary biosciences. Prereq: Grad standing, or standing in Veterinary Medicine program, or DVM, or equiv. Repeatable to a maximum of 15 cr hrs.

**7600 Animal Models of Disease** G 2

This course seeks to optimize translational modelling through selection of the most appropriate animal model for preclinical therapeutic evaluation.

**7700 Functional Neuroanatomy** V 2

Structure and function of the Central Nervous System (CNS) studied through discussion and dissection with emphasis on three-dimensional relationships of selected brain and spinal cord regions. Prereq: VMColl 603. Not open to students with credit for 700.

**7710.14 Applied Veterinary Medicine: Applied Pathology** V 2

Students will perform necropsies of the major domestic species in the applied pathology rotation. The will learn to recognize and describe common gross pathologic lesions and become familiar with the role of histopathology in assessment of necropsy a Prereq: 4th yr standing in Veterinary Medicine Program. Not open to students with credit for VetClin 7710.14. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

**7710.50 Applied Veterinary Medicine: Clinical Pathology** V 2

Clinical experience in daily review of cytologies and blood smears from clinical cases using a multithreaded microscope. Data from serum biochemical profiles and ancillary tests also will be reviewed. Teaching sets are available for additional review. Prereq: 4th yr standing in Veterinary Medicine Program. Not open to students with credit for 724. This course is graded S/U.

**7711 Basic Macroscopic Pathology** G V 1

Basic process of identifying gross lesions in domestic animals and some exotic species. Prereq: Not open to students with credit for 711.

**7712 Applied Veterinary Clinical Pathology** V ½

Designed to review how to evaluate cytology samples from various body systems using a videomicroscope and projected images. Prereq: VetMed 6618 (618). Not open to students with credit for 710.

**7720 Applied Histopathology** G V 2

Interpret histological tissue in actual case material. These changes will be interpreted in the context of clinical history and gross post-mortem findings in order to reconstruct the disease progression. Prereq: VMColl 6550.02 (550.02) and 6530 (530), or permission of instructor. Not open to students with credit for 719 of 720.

**7741 Molecular Virology and Pathogenesis of Viruses** G V 5

An integrated study of the molecular mechanisms of virus replication and host-virus relationships that control virus pathogenesis or use as a therapeutic agent. Prereq: Grad or Prof standing in Veterinary Medicine program, or permission of instructor. Not open to students with credit for 741. Cross-listed in MolGen and MVImg.

**7777 Veterinary Plant Toxicology** V 1

To familiarize the veterinary student with toxic plants and their diagnosis and treatment of toxicity.

Prereq: Prof standing in Veterinary Medicine program, or permission of instructor. Not open to students with credit for 777.

**7790 Electrocardiography** G V 2

Genesis of components of the ECG. ECG changes indicating: disturbance in rhythm, chamber enlargement, abnormal AV conduction, abnormal inter/intra-ventricular conduction, myocardial injury, electrolyte disturbance, drug toxicity. Prereq: grad or professional standing in Veterinary Medicine program; or permission of instructor. Not open to students with credit for 790.

**7791 Heart Sounds, Pressure Pulses, and Pressure-Volume Loops** G V 2

Physiological origin of heart sounds, murmurs, pressure pulses, and pressure-volume loops in health and disease.

Prereq: 2nd or 3rd year standing for Veterinary Professional students. Not open to students with credit for 791.

**7800 Canine Surgical Anatomy** V 2

Detailed study of regional anatomy of the thoracic and pelvic limbs as it relates to selected surgical approaches to the limb and joints.

Prereq: VMColl 520, and professional standing in Veterinary Medicine program; or permission of instructor. Not open to students with credit for 693. This course is graded S/U.

**7801 Advanced Feline Veterinary Anatomy** V 2

Detailed study of feline body systems based on a regional anatomic approach and small group presentation.

Prereq: VMColl 520, and professional standing in Veterinary Medicine program; or permission of instructor. Not open to students with credit for 693. This course is graded S/U.

**7802 International Veterinary Medicine Experience** V 2

The class is organized into two parts. The first portion occurs during the fall and spring semesters, meet every other Wednesday to prepare the students for the trip. The second portion is a ten-day field trip to veterinary colleges in Asia, Europe, South America, and Africa during winter and spring breaks, or at the end of the semester. This course is progress graded (S/U).

**7852 Hematology Case Discussion** V ½

A discussion of laboratory data from clinical cases in an interactive small group setting. The focus is on hematology. Weekly case discussions require student participation.

Prereq: VMColl 6618 (618), and 3rd-year standing in Veterinary Medicine program. Not open to students with credit for 852. This course is graded S/U.

**7900 Data Management for Researchers** G 1

Covers all aspects of research data management best practices, as defined by funding agency requirements. Topics include planning for data organization, documentation, preservation, and sharing in an increasingly complex digital environment.

**8739 Specialty Training in Clinical Pathology** G 1 - 10

In-depth study of common laboratory tests, specialized and ancillary laboratory tests, principles of laboratory testing, and quality assurance with an emphasis on data analysis from clinical patients.

Prereq: Grad or Doct standing in VMColl, or equiv, or permission of instructor. Not open to students with credit for 739. Repeatable to a maximum of 50 cr hrs or 10 completions. This course is graded S/U.

**8810 Advanced Systemic Pathology 1: Laboratory Animal Pathology** G 2

Lecture course covering the principle diseases of laboratory mice, rats, nonhuman primates rabbits, guinea pigs, hamsters, gerbils, and fish as well as lower vertebrates and animals in zoological collections and wildlife species.

Prereq: DVM or equiv. Not open to students with credit for 810.

**8811 Advanced Systemic Pathology 2** G 2

Advanced pathology covering the reproductive, endocrine, ophthalmic, and cardiovascular systems of domestic animals.

Prereq: VetBios students in the Combined Pathology Residency/PhD program, or DVM students; or permission of team leader. Not open to students with credit for 811.

<b>8812</b>	<b>Advanced Systemic Pathology 3</b>	<b>G</b>	<b>2</b>
Advanced pathology covering the respiratory, nervous, and musculoskeletal systems of domestic animals. Prereq: DVM or equiv. Not open to students with credit for 812.			
<b>8813</b>	<b>Advanced Systemic Pathology IV</b>	<b>G</b>	<b>2</b>
Advanced Pathology covering the hemic-lymphatic, hepatobiliary, digestive systems, and dermatopathology. Prereq: Enrollment in DVM degree program, or equiv.			
<b>8814</b>	<b>Advanced Systemic Pathology 5</b>	<b>G V</b>	<b>1</b>
Advanced pathology covering the hemic-lymphatic system of domestic animals. Prereq: VetBios students in the Combined Pathology Residency/PhD Program, or DVM students; or permission of team leader.			
<b>8815</b>	<b>Advanced Systemic Pathology VI</b>	<b>G V</b>	<b>1</b>
Advanced pathology covering the urinary system of domestic animals. Prereq: VetBios students in the Combined Pathology Residency/PhD program, or DVM students; or permission of team leader.			
<b>8893.01</b>	<b>Applied Comparative Pathology</b>	<b>G</b>	<b>1 - 4</b>
Advanced training in gross dissection and interpretation of gross lesions in animals. Prereq: DVM degree or equiv. Not open to students with credit for 718. Repeatable to a maximum of 12 cr hrs or 3 completions. This course is graded S/U.			
<b>8893.02</b>	<b>Veterinary Surgical Pathology</b>	<b>G</b>	<b>1</b>
Case-based from surgical biopsies from the Veterinary Medical Center. Students cut in biopsy material, interpret prepared slides, make a diagnosis and write reports under supervision of a faculty pathologist. Prereq: Grad standing in Veterinary Medicine Program, and DVM degree; or equiv. Not open to students with credit for 815. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>8895.02</b>	<b>Seminars in Diagnostic Veterinary Pathology</b>	<b>G</b>	<b>1</b>
Seminars correlating lesion interpretation, pathogenesis and clinical signs in veterinary cardio-, dermato-, gross, lab animal, large animal, neuro-, ophthalmic, surgical, and zoo pathology. Prereq: Grad standing in Veterinary Medicine program, or permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.			
<b>8895.03</b>	<b>Seminar in Veterinary Clinical Pathology</b>	<b>G</b>	<b>1</b>
Designed to prepare clinical pathology residents for a career in clinical pathology through in-depth discussion of the principles and application of laboratory testing and quality assurance and interpretation of laboratory data. Prereq: Grad or Doct standing in VMColl, or equiv, or permission of instructor. Not open to students with credit for 800.01. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.			
<b>8895.04</b>	<b>Veterinary Histopathology Seminar</b>	<b>G</b>	<b>1</b>
Weekly histopathology seminars to establish written and oral microscopic descriptive skills and correlate interpretation with pathogenesis. Prereq: Grad standing or permission of instructor. Not open to students with credit for 800.02. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.			
<b>8999</b>	<b>Research in Veterinary Biosciences</b>	<b>G</b>	<b>1 - 10</b>
Research for dissertation purposes only. Prereq: Grad standing in Veterinary Medicine program; or permission of instructor. Not open to students with max credit for 999. Repeatable to a maximum of 60 cr hrs or 60 completions. This course is graded S/U.			

## Veterinary Clinical Sciences

<b>4998.02</b>	<b>Individual Studies in Veterinary Clinical Sciences, Undergraduate Research Project</b>	<b>U</b>	<b>1 - 8</b>
A supervised critical investigation of some aspects of animal disease about which there is mutual curiosity of both the student and faculty. This course covers the research experiences of undergraduate students. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.			
<b>7193.01</b>	<b>Independent Studies in Veterinary Clinical Sciences</b>	<b>G V</b>	<b>1 - 8</b>
A supervised critical investigation of some aspects of animal disease about which there is mutual curiosity of both students and faculty. This course covers research experiences of Masters students and Doctoral students prior to candidacy. Prereq: Standing in Veterinary Medicine program, or Grad standing. Repeatable to a maximum of 60 cr hrs or 60 completions. This course is graded S/U.			
<b>7193.02</b>	<b>Individual Studies in Veterinary Clinical Sciences</b>	<b>G V</b>	<b>1 - 2</b>
A supervised critical investigation of some aspects of animal disease about which there is mutual curiosity of both students and faculty. The faculty and student agree on a course project suitable for a letter grade. Prereq: Grad or Prof standing in Veterinary Medicine program, and permission of instructor. Repeatable to a maximum of 5 cr hrs.			
<b>7194.01</b>	<b>Group Studies in Veterinary Clinical Sciences</b>	<b>G V</b>	<b>1 - 3</b>
Group studies course in topic areas of veterinary clinical sciences. Prereq: Grad standing in Veterinary Medicine program, or equiv. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.			

<b>7194.02</b>	<b>Group Studies in Veterinary Clinical Sciences</b>	<b>G V</b>	<b>1 - 3</b>
Graded group studies course in topic areas of veterinary clinical sciences. Prereq: Grad standing, DVM or equivalent, or veterinary medicine program standing.			
<b>7622</b>	<b>Advanced Equine Medical and Surgical Procedures</b>	<b>V</b>	<b>1</b>
A laboratory course designed to develop skills in ultrasound examination, proper use of diagnostic nerve blocks and intra-articular injections, and surgical procedures in the horse. Prereq: 3rd yr standing in Veterinary Medicine program.			
<b>7700.99</b>	<b>Applied Veterinary Medicine: General Rotation</b>	<b>V</b>	<b>1</b>
Students participate in various clinical rotations to reinforce knowledge and clinical practice. Prereq: 4th yr standing in Veterinary Medicine program. This course is graded S/U.			
<b>7710.01</b>	<b>Applied Veterinary Medicine: Community Practice</b>	<b>V</b>	<b>2</b>
Problem-solving and clinical skills taught by physical examination, diagnosis and treatment of client-owned animals. Disease prevention and client education are emphasized, such as nutrition, vaccinations, parasite control, dentistry, animal behavior. Prereq: 4th year standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.02</b>	<b>Applied Veterinary Medicine: Shelter Medicine</b>	<b>V</b>	<b>2</b>
This two week clinical elective provides 4th year vet. students an opportunity for hands on experience in veterinary shelter medicine in a privately funded, non-profit, managed admission shelter, the Capital Area Humane Society. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.03</b>	<b>Applied Veterinary Medicine: Small Animal Internal Medicine</b>	<b>V</b>	<b>1 - 2</b>
Patient diagnosis and management in small animal internal medicine service, including patient care responsibility, client communication, and interactions with all members of the patient care team. Students will build on and apply knowledge gained. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs or 6 completions. This course is graded S/U.			
<b>7710.04</b>	<b>Applied Veterinary Medicine: Small Animal Surgery - Soft Tissue</b>	<b>V</b>	<b>2</b>
Clinical experience in the management of surgical diseases of small animal patients. Students will be responsible for the preoperative, operative, and postoperative treatment for animals presented to the small animal surgery soft tissue service. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.05</b>	<b>Applied Veterinary Medicine: Small Animal Surgery - Orthopedics</b>	<b>V</b>	<b>2</b>
Clinical experience in the surgical management of orthopedic diseases of small animal patients. Students will be responsible for the preoperative, operative, and postoperative treatment of patients presented for small animal orthopedic surgery. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.06</b>	<b>Applied Veterinary Medicine: Farm Animal Medicine and Surgery</b>	<b>V</b>	<b>2</b>
Diagnosis, management, and prevention of medical and surgical diseases of farm animals. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.07</b>	<b>Applied Veterinary Medicine: Large Animal Ambulatory Services</b>	<b>V</b>	<b>2</b>
Provides students with experience working in a large animal clinic, including patient care and business management aspects. Provides instruction in production medicine and its role in modern agriculture. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.08</b>	<b>Applied Veterinary Medicine: Equine Medicine</b>	<b>V</b>	<b>2</b>
Application of the principles of diagnosis, treatment, and prevention of medical diseases of horses. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.09</b>	<b>Applied Veterinary Medicine: Equine Surgery</b>	<b>V</b>	<b>2</b>
Application of the principles of diagnosis, treatment, and prevention of surgical diseases of horses. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.10</b>	<b>Applied Veterinary Medicine: Equine Community Practice</b>	<b>V</b>	<b>2</b>
Application of the principles of diagnosis, treatment, and prevention of diseases of horses. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.11</b>	<b>Applied Veterinary Medicine: Equine Emergency and Critical Care Medicine</b>	<b>V</b>	<b>2</b>
Provides students supervised experience in hospital-based emergency and critical care experience with horses. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			

## 450 Veterinary Clinical Sciences

<b>7710.13</b>	<b>Applied Veterinary Medicine: Clinical Anesthesiology</b>	<b>V</b>	<b>2</b>
Students will assess large and small animal patients for anesthesia, select proper anesthesia protocols, learn proper use of anesthetic equipment, and induce, maintain, monitor, and recover patients in a supervised hospital anesthesia practice. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.15</b>	<b>Applied Veterinary Medicine: Small Animal Critical Care</b>	<b>V</b>	<b>2</b>
Evaluation, monitoring and management of small animal patients in the intensive care unit and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.16</b>	<b>Applied Veterinary Medicine: Small Animal Emergency</b>	<b>V</b>	<b>2</b>
Evaluation and management of small animal patients presented to the emergency service and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum. Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 7710.11. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.17</b>	<b>Applied Veterinary Medicine: Comparative Ophthalmology</b>	<b>V</b>	<b>2</b>
Application of principles of diagnosis and treatment of diseases of the eye to animal patients, including dogs, cats, horses, and farm animals. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.18</b>	<b>Applied Veterinary Medicine: Dermatology</b>	<b>V</b>	<b>2</b>
Patient diagnosis and management in the dermatology service, including patient care, client communication, and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.19</b>	<b>Applied Veterinary Medicine: Cardiology</b>	<b>V</b>	<b>2</b>
Clinical instruction in diagnosis, treatment and prevention of cardiovascular diseases of animals, including patient care, client communication, and interactions with all members of the patient care team. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.20</b>	<b>Applied Veterinary Medicine: Small Animal Neurology</b>	<b>V</b>	<b>2</b>
Patient diagnosis and management in the neurology service including patient care, client communication, and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.21</b>	<b>Applied Veterinary Medicine: Small Animal Oncology</b>	<b>V</b>	<b>2</b>
Patient diagnosis and management in the oncology service, including patient care, cytology and imaging interpretation, client communication, and interactions with all members of the patient care team. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.22</b>	<b>Applied Veterinary Medicine: Theriogenology</b>	<b>V</b>	<b>2</b>
Clinical experience with diagnosis and treatment of reproductive disorders of dogs, cats, cattle and horses, including assisted reproductive procedures. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.26</b>	<b>Surgical Oncology</b>	<b>V</b>	<b>2</b>
Senior veterinary students will learn and understand a comprehensive approach to cancer management in small animals. They will learn the principles of surgical oncology, postoperative management, and follow-up care. This rotation is meant to strengthen and enhance their knowledge of surgical diseases, perioperative monitoring and care, and technical skills. Prereq: 4th year standing in VetMed.			
<b>7710.50</b>	<b>Applied Veterinary Medicine: Diagnostic Imaging</b>	<b>V</b>	<b>2</b>
Students will further develop their image interpretation skills. Emphasis on conventional radiography but alternate imaging modalities such as CT, MRI and nuclear medicine may be included. Students may customize their learning experience based on their area of interest (e.g. equine, small animal, food animal). Students are not expected to participate in the technical aspects of diagnostic imaging. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.51</b>	<b>Applied Veterinary Medicine: Ultrasonography</b>	<b>V</b>	<b>2</b>
Clinical experience with diagnostic ultrasonography for veterinary students working under daily direction of the ultrasound technologist, faculty or resident in radiology. Prereq: 4th yr standing in Veterinary Medicine program. This course is graded S/U.			

<b>7710.52</b>	<b>Applied Veterinary Medicine: Radiation Oncology</b>	<b>V</b>	<b>2</b>
Clinical experience in radiation oncology for veterinary students working under the daily direction of technologists, residents and faculty in radiology. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.53</b>	<b>Applied Veterinary Medicine: Small Animal Rehabilitation and Sports Medicine</b>	<b>V</b>	<b>2</b>
Clinical exposure to rehabilitation. Students will be responsible for patient care and selected treatment modalities of animals presented to the Rehabilitation and Sports Medicine Service. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.			
<b>7710.54</b>	<b>Applied Veterinary Medicine: Small Animal Behavior</b>	<b>V</b>	<b>2</b>
Students will observe and participate in behavioral medicine appointments as well as gain clinical experience in behavior wellness and low stress handling. Students will learn to assess and diagnose behavior and to create treatment and management plans for both Behavioral Medicine and Community Practice patients. Prereq: 4th yr standing in the Professional Veterinary Program. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.			
<b>7710.57</b>	<b>Small Animal Clinical Nutrition</b>	<b>V</b>	<b>1</b>
Patient diagnosis and management related to Clinical Nutrition, including patient care responsibility, client communication, and interactions with all members of the patient care team. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7710.58</b>	<b>Applied Veterinary Medicine: Dentistry</b>	<b>V</b>	<b>2</b>
This rotation will teach students how to do all aspects of General practice Dentistry. This course is graded S/U.			
<b>7711.01</b>	<b>Small Animal Internal Medicine: Advanced Veterinary Clinical Immunology</b>	<b>G</b>	<b>1</b>
This course will provide an advanced understanding of the principles and mechanisms of the immune system and immune responses in the context of infection, metabolic disease and immunological disorders. Prereq: Permission of instructor.			
<b>7711.02</b>	<b>Small Animal Internal Medicine: Geriatric Medicine</b>	<b>G</b>	<b>1</b>
This course will provide in depth discussion of our current understanding of the pathology and pathophysiology of aging and its implications for patient health. Prereq: Permission of instructor.			
<b>7711.03</b>	<b>Small Animal Internal Medicine: Hematology and Oncology</b>	<b>G</b>	<b>1</b>
This course will provide in depth discussion of our current understanding of bone marrow physiology and associated diseases, current understanding of coagulation and platelet function, and cover relevant topics in oncology. Prereq: Permission of instructor.			
<b>7711.04</b>	<b>Small Animal Internal Medicine: Metabolic Disease</b>	<b>G</b>	<b>1</b>
This course will provide in depth discussion of our current understanding of disorders affecting general and cellular metabolism, including vitamin/mineral/electrolyte disorders, and genetics of metabolic disorders. Prereq: Permission of instructor.			
<b>7711.05</b>	<b>Small Animal Internal Medicine: Role of Microbes in Health and Disease</b>	<b>G</b>	<b>1</b>
This course will provide in depth discussion of our current understanding of 1) how the gut microbiome aids in animal health; 2) how the gut microbiome is altered during various disease states; 3) techniques used to define the gut microbiome; and 4) evidence-based modulation of the gut microbiota in clinical patients. Prereq: Permission of instructor.			
<b>7718</b>	<b>Clinical Problem Solving and Treatment in Small Animals I - Internal Medicine</b>	<b>V</b>	<b>2</b>
Exposes the student to approximately 30 clinical cases likely to be encountered in internal medicine of sick dogs and cats using an interactive format with progressive disclosure of information to the students. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 7718.			
<b>7719</b>	<b>Clinical Problem Solving and Treatment in Small Animals II - Medical Subspecialties</b>	<b>V</b>	<b>2</b>
Problem-oriented course using case discussions to teach the diagnostic and therapeutic approach to the most common clinical problems in small animal internal medicine. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 7719.			
<b>7720</b>	<b>Introduction to Small Animal Clinical Nutrition</b>	<b>V</b>	<b>1</b>
Basic concepts and principles of veterinary clinical nutrition and application of these concepts and principles to the nutritional care of small animal patients. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 720.01.			
<b>7721</b>	<b>Dialysis Therapy</b>	<b>G</b>	<b>1</b>
Introduction to principles and practice of dialysis and related therapies.			

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<b>7722</b>	<b>Clinical Problems in Small Animal Cardiology</b>	<b>V</b>	<b>1</b>
Skills in physical examination, radiographic and electrocardiographic interpretation, and management of common cardiovascular diseases in a small group setting. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 722.			
<b>7723</b>	<b>Emergency &amp; Critical Care Volunteer Program</b>	<b>V</b>	<b>1</b>
Clinical exposure to emergency receiving and medical management of hospitalized patients in the intensive care unit through volunteer shifts with the emergency and critical care service and attendance at clinical teaching rounds. Prereq: 1st (second semester), 2nd, or 3rd yr standing in Veterinary Medicine program. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7724</b>	<b>Feline Medicine</b>	<b>V</b>	<b>1</b>
Survey of medical diseases unique to the cat and their management. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 724. This course is graded S/U.			
<b>7727</b>	<b>Avian Medicine and Surgery</b>	<b>V</b>	<b>2</b>
An overview of all aspects of avian medicine including nutrition, behavior, captive management, diagnostic and therapeutic techniques, disease problems, anesthesia and surgery. Includes companion birds, wildlife, backyard poultry and zoo species. Prereq: 2nd or 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 727.			
<b>7732</b>	<b>Equine Lameness and Gait Abnormalities</b>	<b>V</b>	<b>1½</b>
Acquaints students with conditions of the horse that produce gait abnormalities as the presenting clinical complaint. Prereq: 2nd or 3rd year standing in Veterinary Medicine program. Not open to students with credit for 732.			
<b>7733</b>	<b>Advanced Equine Medicine</b>	<b>V</b>	<b>2</b>
Common medical problems in adult horses and foals using a problem-oriented, intensive approach. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 733.			
<b>7737</b>	<b>Equine Intensive Care</b>	<b>V</b>	<b>1</b>
Students will be taught to critically evaluate, treat and monitor patients in the equine intensive care unit through supervised patient contact and weekly seminars. Prereq: 2nd yr standing in Veterinary Medicine program. Not open to students with credit for 737.			
<b>7738</b>	<b>Basic Equine Medicine</b>	<b>V</b>	<b>2</b>
Basic equine medicine and surgery, particularly as it applies to the pleasure horse population. Presented from the generalist's perspective and addressing problems most frequently encountered. Prereq: 2nd or 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 738.			
<b>7743</b>	<b>Basic Exotic Animal Medicine - Small Mammals</b>	<b>V</b>	<b>2</b>
Provides a basic background for a new graduate veterinarian regarding exotic species commonly treated in a companion animal setting. The focus will be on mammalian species. Prereq: Grad or professional standing in Veterinary Medicine program. Not open to students with credit for 743.			
<b>7746</b>	<b>Cattle Diseases</b>	<b>G V</b>	<b>4</b>
Diagnosis and treatment of medical and surgical diseases of individual cattle. Prereq: 2nd or 3rd yr standing in Veterinary Medicine program, or Grad standing.			
<b>7746.02</b>	<b>Cattle Diseases II</b>	<b>V</b>	<b>2</b>
Builds upon concepts provided in CDE I. Like the 1st half of this course, basic organ system related diseases of cattle are covered in other courses. Prereq: 7746.01.			
<b>7747</b>	<b>Small Ruminant Medicine and Surgery</b>	<b>G V</b>	<b>2</b>
Common medical, surgical, and management related problems in sheep, goats, and South American camelids. Prereq: DVM or equiv, or 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 747.			
<b>7748</b>	<b>Topics in Food Animal Medicine and Surgery</b>	<b>G</b>	<b>1</b>
This literature based course affords the student opportunities to review the recent food-animal literature and present their review. Faculty will facilitate discussion.			
<b>7749</b>	<b>Equine Ophthalmology</b>	<b>V</b>	<b>1</b>
Comprehensive problem-based discussions of equine ophthalmic cases, clinical patient examinations, and stall-side rounds, ophthalmic techniques laboratory and cadaver surgery laboratory. Prereq: VMColl 6612; 3rd year standing in Veterinary Medicine program. Not open to students with credit for 749.			
<b>7750</b>	<b>Veterinary Anesthesia and Analgesia Pharmacology</b>	<b>G</b>	<b>2</b>
Pharmacology of sedatives, anesthetics, and analgesics, pain mechanisms, and therapies as related to veterinary clinical patients.			

<b>7752</b>	<b>Advanced Veterinary Clinical Neurology</b>	<b>V</b>	<b>1</b>
Presentation and discussion of common neurological problems and diseases. Prereq: 6603; 3rd year standing in Veterinary Medicine program. This course is graded S/U.			
<b>7754</b>	<b>Veterinary Clinical Oncology</b>	<b>V</b>	<b>2</b>
Provides veterinary students with advanced knowledge and understanding of oncology, including cancer diagnosis, chemotherapy, and client communications. Prereq: Third-year standing in veterinary medicine program.			
<b>7762</b>	<b>Clinical Veterinary Ophthalmology</b>	<b>V</b>	<b>1</b>
A problem-based approach to differential diagnosis, final diagnosis, and treatment of ophthalmic diseases in large and small animals. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 762. This course is graded S/U.			
<b>7768</b>	<b>Integrative Medicine</b>	<b>V</b>	<b>1</b>
Overview of integrative medicine, including discussion of the basic science behind complementary modalities as well as their clinical effectiveness. Research considerations also will be presented. Prereq: 1st (second semester), 2nd, 3rd, or 4th yr standing in Veterinary Medicine program. This course is graded S/U.			
<b>7771</b>	<b>Applied Veterinary Clinical Dermatology</b>	<b>G V</b>	<b>1</b>
Case-based problem-oriented studies of common dermatologic problems in dogs and cats. Prereq: 6606, and 3rd yr standing in Veterinary Medicine program or Grad standing; or permission of instructor.			
<b>7772</b>	<b>Equine Cardiology</b>	<b>G V</b>	<b>1</b>
Clinical approach to the diagnosis and management of spontaneous cardiovascular diseases in the horse. Prereq: DVM or equiv or 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 783.			
<b>7773</b>	<b>Large Animal Radiographic Interpretation</b>	<b>V</b>	<b>2</b>
A review and practice of radiographic anatomy and interpretative skills of large animal diagnostic images with emphasis on the musculoskeletal system. Prereq: 3rd yr standing in Veterinary Medicine program.			
<b>7774</b>	<b>Introduction to Alternate Imaging and Contrast Radiography</b>	<b>V</b>	<b>1</b>
Basics of contrast radiography and alternative imaging modalities (ultrasonography, computed tomography, magnetic resonance imaging, scintigraphy) and an overview of their use as diagnostic tools in veterinary medicine. Prereq: 1st yr (second semester) or 2nd yr standing in Veterinary Medicine program. Not open to students with credit for VMColl 526.			
<b>7775</b>	<b>Anesthesia Case Management</b>	<b>V</b>	<b>1</b>
Covers anesthetic management of veterinary patients for elective and emergency procedures. Prereq: Third-year standing in veterinary medicine program.			
<b>7776</b>	<b>Radiobiology for the Radiologist</b>	<b>G</b>	<b>1</b>
This course is intended to review the ACVR Radiobiology objective in preparation for the ACVR preliminary board examination.			
<b>7778</b>	<b>Puppy Kindergarten</b>	<b>V</b>	<b>1</b>
Participation in education of pet owners about behavior wellness and socialization of puppies. The course allows students to observe and influence the development of canine behavior. Prereq: 1st (second semester) or 2nd yr standing in Veterinary Medicine program. Not open to students with credit for 793. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7779</b>	<b>Equine Colic Team</b>	<b>V</b>	<b>1</b>
Diagnosis, treatment, and prevention of diseases of the equine gastrointestinal system. A practical course, in which the students are assigned on-call duty for emergency colic patients. Prereq: 2nd or 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 796.03. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7780</b>	<b>Environmental Enrichment for Shelter Dogs</b>	<b>V</b>	<b>1</b>
Review the scientific literature on enrichment in shelter animals and discuss practical means of implementation. It will include discussion of means to identify and mitigate stress in shelter dogs to increase their adoptability and hands on involvement with implementing a behavioral enrichment program for dogs at the Franklin County Dog Shelter. Prereq: Standing in the Veterinary Professional curriculum. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.			
<b>7781</b>	<b>Top 20 Medical Conditions in Dogs</b>	<b>V</b>	<b>2</b>
This is a pilot course for third-year DVM student learners who are interested in small animal primary care practice employment and who wish to gain comfort with the ambiguity presented in managing typical cases in that setting. This course is graded S/U.			
<b>7791</b>	<b>Small Animal Theriogenology</b>	<b>G V</b>	<b>1</b>
Control of reproductive function in dogs and cats and how to diagnose and devise a treatment plan for infertility due to infectious and noninfectious causes. Prereq: 2nd or 3rd yr standing in Veterinary Medicine program, or Grad standing.			

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<b>7793</b>	<b>Lectures in Equine Theriogenology</b>	<b>G V</b>	<b>2</b>
Focuses on the pathophysiology of common reproductive disorders and how to devise plans to treat common reproductive disorders in horses. Prereq: 2nd or 3rd yr standing in the Veterinary Medicine program or grad standing. Not open to students with credit for 791.01.			
<b>7794</b>	<b>Equine Theriogenology Laboratory</b>	<b>V</b>	<b>1</b>
A laboratory session that will enable students to practice techniques for assessing reproductive function and fertility potential of horses. Prereq: 3rd yr standing in Veterinary Medicine program, and enrollment in the Equine Career Area of Emphasis; or permission of instructor. Concur: 7793. Not open to students with credit for 791.01.			
<b>7895.02</b>	<b>Seminar in Reproductive Physiology and Medicine</b>	<b>G V</b>	<b>1</b>
Critical review of the current literature related to comparative reproductive physiology and medicine. Primary emphasis will be placed on experimental design, methods, and conclusions. Prereq: 1st (second semester), 2nd, or 3rd yr standing in Veterinary Medicine program, and DVM or equiv; or permission of instructor. Not open to students with credit for 790. This course is graded S/U.			
<b>8100</b>	<b>Nuclear Medicine and Special Procedures in Diagnostic Imaging</b>	<b>G</b>	<b>2</b>
Reviews basic principles of special procedures in diagnostic imaging. Interpretive principles using case examples and a current review of the literature will be targeted with a focus on the ACVR Examination Objectives. Prereq: Students must have a DVM/VMD, or equiv degree; or permission of instructor.			
<b>8200</b>	<b>Clinical and Didactic Teaching in Veterinary Medicine</b>	<b>G</b>	<b>2</b>
A didactic course presenting lectures on teaching theory, and best teaching practices for clinical, didactic, and small groups.			
<b>8600.01</b>	<b>Advanced Topics in Comparative Behavioral Medicine</b>	<b>G</b>	<b>1</b>
Course familiarizes the student with comparative behavioral medicine by critical review and evaluation of the current and past literature in both human and veterinary medicine with emphasis on study design, methodology, and data interpretation. Prereq: DVM or equiv, or permission of instructor.			
<b>8600.02</b>	<b>Advanced Topics in Comparative Behavioral Medicine</b>	<b>G</b>	<b>1</b>
Course familiarizes the student with comparative behavioral medicine by critical review and evaluation of the current and past literature in both human and veterinary medicine with emphasis on study design, methodology, and data interpretation. Prereq: DVM or equiv, or permission of instructor. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.			
<b>8601.01</b>	<b>Advanced Topics in Veterinary Psychopharmacology I</b>	<b>G</b>	<b>2</b>
Course includes a review of psychopharmacology, including mechanism of action, side effects of veterinary Psychotropic drugs. Metabolism and excretion of drugs, drug interactions, and combination therapies and their clinical use are also discussed.			
<b>8601.02</b>	<b>Advanced Topics in Veterinary Psychopharmacology II</b>	<b>G</b>	<b>2</b>
Course includes a review of psychopharmacology, including mechanism of action, side effects of veterinary psychotropic drugs. Metabolism and excretion of drugs, drug ininteractions, and combination therapies and their clinical use also discussed.			
<b>8781</b>	<b>Research Methods and Grantsmanship</b>	<b>G</b>	<b>1</b>
Introduction to grantsmanship, including the development of a research question, use of appropriate statistical methods, and the preparation of a research proposal that will be reviewed by the class. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 800.			
<b>8782.01</b>	<b>Techniques in Ophthalmic and Vision Research I</b>	<b>G</b>	<b>1</b>
Familiarizes students with current research techniques in comparative ophthalmology. This will include, but not be limited to PCR, cell culture, drug delivery, immunohistochemistry and other common ophthalmic research tools. Prereq: DVM or equiv, or permission of instructor.			
<b>8782.02</b>	<b>Techniques in Ophthalmic and Vision Research II</b>	<b>G</b>	<b>1</b>
Familiarizes the student with current research techniques in comparative ophthalmology. This will include, but not be limited to PCR, cell culture, drug delivery, immunohistochemistry and other common ophthalmic research tools. Prereq: 8782.01, and DVM, or equiv; or permission of instructor.			
<b>8783</b>	<b>Experimental Design &amp; Data Analysis in Veterinary &amp; Comparative Medicine I</b>	<b>G</b>	<b>1</b>
Principles and practice of study designs and data analyses commonly used in veterinary and comparative medical research. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 801.			
<b>8784</b>	<b>Experimental Design &amp; Data Analysis in Veterinary &amp; Comparative Medicine II</b>	<b>G</b>	<b>1</b>
Introduction to the principles and practice of study designs and data analyses commonly used in veterinary and comparative medical research. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 801.			
<b>8790</b>	<b>Veterinary Clinical Pharmacology and Therapeutics</b>	<b>G</b>	<b>2</b>
Mechanism of action, indications, and potential adverse effects of commonly used drugs. Emphasis will be placed on cellular effects, receptor interactions, and intracellular signaling pathways. Basic pharmacokinetic principles will also be presented.			

<b>8791</b>	<b>Clinical Correlations in Large Animal Medicine &amp; Surgery</b>	<b>G</b>	<b>1</b>
The purpose of this course is to develop clinical expertise in large animal medicine through interactive case-based discussions covering pathophysiology, clinical medicine, treatment, and prognosis. Evidence-based medicine will be emphasized. Prereq: DVMs in residency/Grad programs, or by petition of team leader. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>8822.02</b>	<b>Advanced Veterinary Internal Medicine: Gastroenterology</b>	<b>G</b>	<b>2</b>
In-depth review of the pathophysiology, diagnosis, and medical treatment of selected gastrointestinal diseases of dogs and cats. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.02.			
<b>8822.03</b>	<b>Advanced Veterinary Internal Medicine: Respiratory Disease</b>	<b>G</b>	<b>2</b>
An in-depth review of the pathophysiology, diagnosis, and medical treatment of selected respiratory diseases of dogs and cats. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.03.			
<b>8822.04</b>	<b>Advanced Veterinary Internal Medicine: Neurology</b>	<b>G</b>	<b>2</b>
In-depth review of the pathophysiology, diagnosis, and medical treatment of selected neurologic diseases of dogs and cats. Fundamentals of neurologic examination and lesion localization. Neuro-ophthalmology, hearing disorders, and neurodiagnostics. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.04.			
<b>8822.06</b>	<b>Advanced Veterinary Internal Medicine: Nephrology and Urology</b>	<b>G</b>	<b>2</b>
In-depth review of the pathophysiology, diagnosis, and medical treatment of urinary tract diseases of dogs and cats. Renal physiology relevant to clinical medicine, diagnostic imaging techniques, management of specific urinary tract syndromes. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.06.			
<b>8822.07</b>	<b>Advanced Veterinary Internal Medicine: Oncology I</b>	<b>G</b>	<b>1</b>
This course will provide an introduction to basic cancer biology, medical cancer therapy, cancer diagnosis, experimental tumor model systems, and comparative and translational oncology focusing on lymphoma and sarcoma. Prereq: DVM or equiv, or permission of instructor. Not open to students with credit for 822.07.			
<b>8822.08</b>	<b>Advanced Veterinary Internal Medicine: Hepatology</b>	<b>G</b>	<b>2</b>
In-depth review of the pathophysiology, diagnosis, and medical treatment of selected diseases of the hepatobiliary system and pancreas in dogs and cats. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.08.			
<b>8822.11</b>	<b>Advanced Veterinary Internal Medicine: Comparative Structure and Function of the Integument</b>	<b>G</b>	<b>2</b>
Normal anatomy, physiology and functions of the skin and related structures. Prereq: DVM or equiv; or permission of instructor.			
<b>8822.12</b>	<b>Advanced Veterinary Internal Medicine: Otology and Audiology</b>	<b>G</b>	<b>1</b>
Designed to introduce the student to the basics of ear disease and audiology. Prereq: DVM or equiv; or permission of instructor.			
<b>8822.13</b>	<b>Equine Musculoskeletal Imaging</b>	<b>G</b>	<b>1</b>
Covers all aspects of equine musculoskeletal imaging (radiology, ultrasound, nuclear medicine, MRI) with particular emphasis on pathologic conditions and the best diagnostic modality to document the pathology.			
<b>8822.14</b>	<b>Advanced Veterinary Internal Medicine: Oncology II</b>	<b>G</b>	<b>1</b>
This course will discuss principles of the clinical management of veterinary cancer patients, including: pharmacology of cancer drugs, paraneoplastic syndromes, complications of treatment, nutrition, functional imaging, and hospice care.			
<b>8824</b>	<b>Congenital Heart Disease in Animals</b>	<b>G</b>	<b>3</b>
An overview and in-depth analysis of congenital malformations of the heart and great vessels in veterinary species. Complex lesions are emphasized, with a focus on the pathophysiology and diagnostic findings. Subject to approval by course leader. Grad students must be in good academic standing, and they must be a current resident in cardiology or with permission of the team leader to register. Prereq: Permission of instructor.			
<b>8824.01</b>	<b>Cardiac Catheterization and Angiography in Dogs and Cats - Equipment and Techniques</b>	<b>G</b>	<b>2</b>
This course will present an in-depth review on the equipment and techniques used during cardiac catheterization procedures for diagnostic and therapeutic purposes. Target species will be small animals. Advanced understanding and training of/in cardiac anatomy, cardiac physiology and pathophysiology, cardiac hemodynamics, and cardiac catheterization required prior to enrollment. Prereq: Enrollment in VCS residency program.			
<b>8825</b>	<b>Clinical Echocardiography in Animals</b>	<b>G</b>	<b>2</b>
Presents an in-depth review on 2D, Mmode, Doppler, TDI, strain and speckle, and 3D echocardiography. Transthoracic imaging modalities and disease pattern will be studied and discussed. Species focus will be animals and people. Prereq: Advanced knowledge of veterinary cardiac anatomy and physiology.			

<b>8826</b>	<b>Cardiac Catheterization in Veterinary Medicine: Hemodynamics, Angiography &amp; Intervention</b>	<b>G</b>	<b>3</b>
Principles and practices of obtaining hemodynamic measurements; performing angiographic techniques for cardiac diagnosis; and delivery of catheter-based therapies in veterinary medicine. Prereq: Enrollment in Adv Cardiology Training, or permission of instructor.			
<b>8827</b>	<b>Advanced Clinical Electrocardiography</b>	<b>G</b>	<b>2</b>
This course considers advanced concepts in the recognition and therapy of cardiac arrhythmias in veterinary medicine using in-class EKG interpretation as the springboard for discussions of classification, diagnosis, and therapy. VetBios 7790 completion recommended but not required. Prereq: Enrollment in advanced clinical training; or prior electrocardiography experience and instructor permission.			
<b>8828.01</b>	<b>Heart Rhythm Disturbances in Veterinary Medicine I: Mechanisms of Arrhythmogenesis</b>	<b>G</b>	<b>1</b>
A three-part course offered over three consecutive semesters with a focus on resident-graduate students training in veterinary cardiology. Part 1: Mechanisms of Arrhythmogenesis; Intra-cardiac electrocardiography; Cardiac conduction disturbances; Cardiac Pacing; Ablation therapies. Prereq: Grad standing in adv cardiology training or instructor permission.			
<b>8828.02</b>	<b>Heart Rhythm Disturbances in Veterinary Medicine II: Sinus, Atrial, and Supraventricular Rhythm Dist</b>	<b>G</b>	<b>1</b>
A three-part course offered over three consecutive semesters with a focus on resident-graduate students training in veterinary cardiology. Part 2: Sinus, Atrial and Supraventricular Rhythm Disturbances: Mechanisms of arrhythmogenesis; Recognition using conventional and intracardiac electrocardiography; Standard and advanced treatment modalities. Prereq: Grad standing in adv cardiology training or instructor permission.			
<b>8828.03</b>	<b>Heart Rhythm Disturbances in Veterinary Medicine III: Ventricular Rhythm Disturbances</b>	<b>G</b>	<b>1</b>
A three-part course offered over three consecutive semesters with a focus on resident-graduate students training in veterinary cardiology. Part 3: Ventricular Rhythm Disturbances: Mechanisms of arrhythmogenesis; Recognition using conventional and intracardiac electrocardiography; Standard and advanced treatment modalities. Prereq: Grad standing in adv cardiology training or instructor permission.			
<b>8833.01</b>	<b>Advanced Veterinary Surgery: Anesthesia &amp; Critical Care</b>	<b>G</b>	<b>2</b>
Review of physiology and medical intervention for selected topics including cardiorespiratory resuscitation, sepsis, and ischemia/reperfusion in veterinary anesthesia and critical care; comparison to similar topics in human medicine when appropriate. Prereq: DVM or equiv; or permission of instructor.			
<b>8833.02</b>	<b>Advanced Veterinary Surgery: Surgical Oncology</b>	<b>G</b>	<b>1</b>
The purpose of this course is to provide information about surgical oncology, radiation oncology, and the most recent surgical options to treat cancer. Laboratories will be provided to apply surgical techniques for maxillectomy/mandibulectomy. Repeatable to a maximum of 2 or hrs.			
<b>8833.03</b>	<b>Advanced Veterinary Surgery: Respiratory and Thoracic Surgery</b>	<b>G</b>	<b>3</b>
Fundamental respiratory pathophysiology, diagnostic techniques for respiratory disease, and respiratory and thoracic surgery methodology in comparative veterinary surgical sciences. Prereq: DVM or equiv, or permission of instructor.			
<b>8833.04</b>	<b>Advanced Veterinary Surgery: Surgical Neurology</b>	<b>G</b>	<b>2</b>
Fundamentals of neurologic exam and lesion localization; neuro-ophthalmology, hearing disorders, neurodiagnostic techniques, neuroanesthesia. Pathophysiology of vertebral column trauma; surgical techniques; peripheral nerve injury and rehabilitation. Prereq: DVM or equiv; or permission of instructor.			
<b>8833.05</b>	<b>Advanced Surgical Sciences: Gastroenterology</b>	<b>G</b>	<b>2</b>
The purpose of this course is to provide information about the pathophysiology, anatomy, diagnosis and treatment of medical and surgical disorders of the gastrointestinal tract. Prereq: DVM or equiv., or permission of instructor.			
<b>8833.06</b>	<b>Advanced Veterinary Surgery: Renal, Urologic and Reproductive Surgery</b>	<b>G</b>	<b>2</b>
Principles and comparative aspects of renal, urologic, and reproductive tract surgery in domestic animals; physiology, pathology, diagnosis and management of diseases of the urogenital tract in domestic animals. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 833.06.			
<b>8833.07</b>	<b>Advanced Veterinary Surgery: Musculoskeletal Surgery</b>	<b>G</b>	<b>1</b>
Fundamental concepts, principles, and procedures of musculoskeletal surgery in domestic animals. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 833.07.			
<b>8833.08</b>	<b>Advanced Veterinary Surgery: Wound and Reconstruction</b>	<b>G</b>	<b>1</b>
The purpose of this course is to provide information about the physiology, anatomy, and healing principles of skin. The principles of wound reconstruction with open wound management, flaps, and grafts to be discussed. Laboratories will be provided. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 833.09.			

<b>8833.10</b>	<b>Advanced Veterinary Ocular Microsurgical Techniques I</b>	<b>G</b>	<b>2</b>
Cover microsurgical instrumentation, surgical microscopes, care of microsurgical equipment, microsurgical principles and techniques pertaining to the eye. This will include advanced blepharoplasty, corneal and intraocular surgery. Prereq: Veterinary Ophthalmology Resident, or permission of instructor.			
<b>8833.11</b>	<b>Advanced Veterinary Ocular Microsurgical Techniques II</b>	<b>G</b>	<b>2</b>
Covers microsurgical instrumentation, surgical microscopes, care of microsurgical equipment, microsurgical principles and techniques pertaining to the eye. Will include advanced blepharoplasty, corneal and intraocular surgery. Prereq: VetClin 8833.10, and Veterinary Ophthalmology Resident; or permission of instructor.			
<b>8844.02</b>	<b>Advanced Large Animal Internal Medicine: Medical and Surgical Gastrointestinal Diseases</b>	<b>G</b>	<b>2½</b>
Comprehensive review of medical and surgical diseases of the gastrointestinal system of horses and ruminants. Prereq: DVM or equiv; or permission of instructor.			
<b>8844.03</b>	<b>Advanced Large Animal Internal Medicine: Metabolic and Endocrine Diseases</b>	<b>G</b>	<b>1½</b>
Species specific and comparative aspects of metabolic and endocrine physiology, pathophysiology and diseases in large animals. Prereq: DVM or equiv; or permission of instructor.			
<b>8844.04</b>	<b>Advanced Large Animal Internal Medicine: Neurology</b>	<b>G</b>	<b>2½</b>
Pathophysiology, diagnosis and management of diseases of the nervous system of large animals. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.04.			
<b>8844.05</b>	<b>Advanced Large Animal Internal Medicine: Hematology and Oncology</b>	<b>G</b>	<b>2½</b>
Physiology and pathophysiology of the hemic lymphatic system in large animals. Additionally, diagnosis and management of selected neoplastic conditions will be discussed. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 822.07.			
<b>8844.06</b>	<b>Advanced Large Animal Internal Medicine: Musculoskeletal Diseases</b>	<b>G</b>	<b>1</b>
Physiology, pathophysiology and diseases of the musculoskeletal system in large animals. Prereq: DVM or equiv; or permission of instructor.			
<b>8844.09</b>	<b>Advanced Large Animal Internal Medicine: Principles of Fluid and Electrolyte Balance</b>	<b>G</b>	<b>½</b>
Principles of fluid and electrolyte balance and the pathophysiology and management of disorders of sodium, potassium and chloride balance in large animal species. Prereq: DVM or equiv; or permission of instructor.			
<b>8844.10</b>	<b>Advanced Large Animal Internal Medicine: Respiratory Diseases</b>	<b>G</b>	<b>2½</b>
Comprehensive review of selected topics in respiratory physiology and medical diseases of the respiratory tract of horses, ruminants, and camelids. Prereq: DVM or equiv; or permission of instructor.			
<b>8844.12</b>	<b>Advanced Large Animal Internal Medicine: Toxicology</b>	<b>G</b>	<b>1</b>
Review and update on toxic agents in large animals. Prereq: DVM or equiv; or permission of instructor.			
<b>8844.13</b>	<b>Large Animal Internal Medicine Seminars: Neonatology</b>	<b>G</b>	<b>1</b>
Focuses on conditions affecting neonates of large animal species covering pathophysiology, clinical medicine, treatment, and prognosis. Emphasis will be on current knowledge and recent comparative literature. Prereq: This course is for DVMs in residency/graduate programs or by petition of the team leader.			
<b>8844.14</b>	<b>Advanced Large Animal Internal Medicine: Special Topics</b>	<b>G</b>	<b>1</b>
The purpose of this course is to present and discuss the most recent literature / topics (clinical, research) in large animal internal medicine that are not covered in other courses, but that are relevant to residents and grad students. Prereq: DVMs in residency/Grad programs, or by petition of team leader. Repeatable to a maximum of 2 or hrs.			
<b>8855.01</b>	<b>Advanced Veterinary Surgery: Large Animal Urogenital</b>	<b>G</b>	<b>2</b>
Students will review urinary physiology and pathophysiology, and will be introduced to the principles of urogenital surgery. Specific large animal urinary and genital conditions and surgical approaches will be covered.			
<b>8855.02</b>	<b>Advanced Veterinary Surgery: Gastrointestinal Surgery</b>	<b>G</b>	<b>2</b>
Covers advanced large animal surgical techniques of the gastrointestinal tract. Current literature will be reviewed and pathophysiology and medical case management will also be included in the lecture series.			
<b>8855.04</b>	<b>Large Animal Neurosurgery</b>	<b>G</b>	<b>3</b>
Presentation of pathophysiology, diagnosis, and surgical treatment for injury to the nervous system with a focus on large animals			

## 454 Veterinary Clinical Sciences

<b>8871</b>	<b>Small Animal Abdominal Ultrasound</b>	<b>G</b>	<b>1</b>
Basics of ultrasound physics and a review of the normal and abnormal sonographic appearance of abdominal structures in small animals. Introduction to Doppler imaging, contrast ultrasound, and ultrasound-guided aspirates. Prereq: DVM or equiv; or permission of instructor.			
<b>8872</b>	<b>Advanced Equine Sport Horse Surgery</b>	<b>G</b>	<b>1</b>
Systematic exposure of the advanced surgery trainee to the "art and science" of arthroscopy, specifically equine arthroscopy, using current textbooks as the guide for complete coverage of equine arthroscopy.			
<b>8873</b>	<b>Anesthesia of the Large Animal Patient</b>	<b>G</b>	<b>3</b>
Course includes a review of anesthetic risk, pharmacology of anesthetic drugs, pain, and CPR with an emphasis on equine and ruminant patient. The focus of this course is on all aspects of the anesthetic process in the equine and ruminant patient.			
<b>8874</b>	<b>Anesthesia of the Small Animal Patient</b>	<b>G</b>	<b>4</b>
Course includes a review of anesthetic risk, specific disease conditions in small animal patient with an emphasis on specific domains of the ACVAA board exam and job task analysis.			
<b>8893.01</b>	<b>Case Conference: Orthopedic Surgery</b>	<b>G</b>	<b>1</b>
Offers surgery residents the opportunity to discuss small animal orthopedic/ neurosurgical cases and review relevant literature in a critical manner. Topics will be prepared for interactive discussion between residents and surgery faculty. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8893.02</b>	<b>Clinicopathologic Conference: Canine and Feline Medicine</b>	<b>G</b>	<b>1</b>
Case conference emphasizing advanced aspects of canine and feline medicine. Emphasis is placed on interpretation of clinical, imaging, laboratory and pathologic data. Prereq: DVM or equiv, or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8893.03</b>	<b>Case Conference: Soft Tissue Surgery</b>	<b>G</b>	<b>1</b>
Offers surgery residents the opportunity to discuss small animal soft tissue cases and review relevant literature in a critical manner. Topics will be prepared for interactive discussion between residents and surgery faculty. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 850.09. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8894.01</b>	<b>Advanced Comparative Clinical Ophthalmology I</b>	<b>G</b>	<b>1</b>
Familiarizes the student with comparative ophthalmology. Case material will be used to enhance student knowledge of diseases and treatment of the anterior and posterior segment and ocular adnexa. Prereq: DVM or equiv; or permission of instructor.			
<b>8894.02</b>	<b>Advanced Comparative Clinical Ophthalmology II</b>	<b>G</b>	<b>1</b>
Familiarizes the student with comparative ophthalmology. Case material will be used to enhance student knowledge of diseases and treatment of the anterior and posterior segment and ocular adnexa. Prereq: DVM or equiv; or permission of instructor.			
<b>8894.03</b>	<b>Advanced Comparative Clinical Ophthalmology III</b>	<b>G</b>	<b>1</b>
Familiarize the student with comparative ophthalmology. Case material will be used to enhance student knowledge of diseases and treatment of the anterior and posterior segment and ocular adnexa. Prereq: DVM or equiv; or permission of instructor.			
<b>8894.04</b>	<b>Case Conference: Radiology</b>	<b>G</b>	<b>2</b>
Veterinary diagnostic imaging graduate students are presented case material and are graded on their ability to detect imaging abnormalities, create a list of differential diagnoses, achieve an imaging diagnosis and advise the next step for the case. Prereq: DVM or equiv; or permission of instructor.			
<b>8894.05</b>	<b>Radiology Known Case Conference Introductory II</b>	<b>G</b>	<b>2</b>
Teach and train radiology graduate students the correct approach to diagnostic image interpretation during their 3 year program. Radiology graduate students are expected to formulate a ranked list of differential diagnoses and discuss other diagnostic modalities that may aid in further determining a diagnosis. Discussion of pathophysiology will be included. Prereq: 8894.04, and Veterinary Diagnostic Imaging Residency.			
<b>8894.06</b>	<b>Radiology Known Case Conference Intermediate I</b>	<b>G</b>	<b>2</b>
Teach and train radiology graduate students the correct approach to diagnostic image interpretation during their three year program. Radiology graduate students are expected to formulate a ranked list of differential diagnoses and discuss other diagnostic modalities that may aid in further determining a diagnosis. Discussion of pathophysiology will be included. Prereq: 8894.04 and 8894.05, and Veterinary Diagnostic Imaging residency.			
<b>8894.07</b>	<b>Radiology Known Case Conference Intermediate II</b>	<b>G</b>	<b>2</b>
Teach and train radiology graduate students the correct approach to diagnostic image interpretation during their three year program. Radiology graduate students are expected to formulate a ranked list of differential diagnoses and discuss other diagnostic modalities that may aid in further determining a diagnosis. Discussion of pathophysiology will be included. Prereq: 8894.04, 8894.05, and 8894.06, and Veterinary Diagnostic Imaging Residency.			

<b>8894.08</b>	<b>Radiology Known Case Conference Advanced I</b>	<b>G</b>	<b>2</b>
Teach and train radiology graduate students the correct approach to diagnostic image interpretation during their three year program. Radiology graduate students are expected to formulate a ranked list of differential diagnoses and discuss other diagnostic modalities that may aid in further determining a diagnosis. Discussion of pathophysiology will be included. Prereq: 8894.04, 8894.05, 8894.06, and 8894.07, and Veterinary Diagnostic Imaging residency.			
<b>8894.09</b>	<b>Radiology Known Case Conference Advanced II</b>	<b>G</b>	<b>2</b>
Teach and train radiology graduate students the correct approach to diagnostic image interpretation during their three year program. Radiology graduate students are expected to formulate a ranked list of differential diagnoses and discuss other diagnostic modalities that may aid in further determining a diagnosis. Discussion of pathophysiology will be included. Prereq: 8894.04, 8894.05, 8894.06, 8894.07, and 8894.08, and Veterinary Diagnostic Imaging Residency.			
<b>8895.01</b>	<b>Advanced Topics in Veterinary Cardiology</b>	<b>G</b>	<b>1</b>
Advanced topics in cardiology focusing on resident-graduate students training in veterinary cardiology. Eight topics are covered over eight repetitions of the course including cardiomyopathy, pulmonary hypertension, heart failure, systolic function and dysfunction, diastolic function and dysfunction, degenerative valve disease, endocarditis, pericardial disease, and thrombosis and thromboembolism. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 8 cr hrs.			
<b>8895.02</b>	<b>Advanced Topics in Veterinary Clinical and Comparative Oncology</b>	<b>G</b>	<b>1</b>
Critical review of literature on topics related to veterinary clinical and comparative (animal and human) oncology and neoplastic pathology review. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 6 cr hrs.			
<b>8895.03</b>	<b>Advanced Topics in Veterinary Dermatology and Otolaryngology</b>	<b>G</b>	<b>1</b>
Small group discussion and critical review of current topics in veterinary medicine from selected journals and textbooks. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8895.04</b>	<b>Advanced Topics in comparative Diagnostic Imaging</b>	<b>G</b>	<b>1</b>
Familiarize radiology residents and graduate students with comparative diagnostic imaging by critical review of the biomedical literature. Emphasis on evaluation of study design, methodology, and data interpretation. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8895.05</b>	<b>Advanced Veterinary Endoscopy</b>	<b>G</b>	<b>1</b>
The student will be able to critically understand the standard procedures performed in small animal internal medicine with respect to techniques, required equipment, procedural decision-making, associated risks, and endoscopic interpretation.			
<b>8895.07</b>	<b>Advanced Topics in Veterinary Neurology</b>	<b>G</b>	<b>1</b>
A small-group course based on the discussion of the current literature and review of topics of neuroimaging and neuropathology with clinical correlations. Prereq: DVM or equiv, or permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.			
<b>8895.08</b>	<b>Advanced Topics in Comparative Anesthesiology</b>	<b>G</b>	<b>1</b>
Critical review of current literature related to anesthesiology with a focus on research design, methodology, and interpretation. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8895.12</b>	<b>Advanced Comparative Ophthalmology</b>	<b>G</b>	<b>1</b>
Familiarize the student with comparative ophthalmology by critical review and evaluation of the current and past biomedical literature with emphasis on study design, methodology, and data interpretation. Prereq: DVM or equiv; or permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.			
<b>8895.13</b>	<b>Journal Review in Comparative Emergency and Critical Care</b>	<b>G</b>	<b>1</b>
Familiarize the student with comparative Emergency and Critical Care. The current and past primary literature from selected peer-reviewed journals will be critically reviewed with regards to study design, methodology and data interpretation. Prereq: DVMs in residency/graduate programs, or by petition of the team leader. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			
<b>8895.14</b>	<b>Comparative Small Animal Internal Medicine</b>	<b>G</b>	<b>1</b>
Critical review of the veterinary & human biomedical literature in internal medicine with respect to study design, methodology, and data interpretation and discussion of clinical implications of results. Prereq: DVMs in residency/Grad programs, or by petition of team leaders.			
<b>8895.15</b>	<b>Comparative Small Animal Internal Medicine</b>	<b>G</b>	<b>1</b>
Critical review of the veterinary & human biomedical literature in internal medicine with respect to study design, methodology, and data interpretation and discussion of clinical implications of results. Prereq: DVMs in residency/Grad programs, or by petition of team leaders. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.			



<b>8896</b>	<b>Physics Applied to Anesthetic Practice</b>	<b>G</b>	<b>1</b>
A didactic course using discussion of current literature related to physics and anesthesia. This course includes a review of important concepts in physics, measurements, anesthesia equipment, and how they apply to anesthesia practice.			
<b>8896.03</b>	<b>Advanced Topics in Veterinary Dermatology and Otolaryngology</b>	<b>G</b>	<b>1</b>
Small group discussion and critical review of current topics in veterinary medicine from selected journals and textbooks. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.04</b>	<b>Dermatopathology I</b>	<b>G</b>	<b>1</b>
Familiarize the student with both normal microscopic anatomy of the skin and dermatopathology of exotic, large and small animals. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.05</b>	<b>Dermatopathology II</b>	<b>G</b>	<b>1</b>
Familiarizes students with interpretation of dermatopathology by pattern analysis. Recognition of subtle changes, cellular infiltrates and infectious organisms will be emphasized to allow development of differential diagnoses. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.06</b>	<b>Dermatopathology III</b>	<b>G</b>	<b>1</b>
Builds on recognition of subtle changes, cellular infiltrates and presence of infectious organisms and include pattern recognition to differentiate non-neoplastic, benign and malignant neoplasms of mammalian species. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.08</b>	<b>Advanced Topics in Comparative Anesthesiology</b>	<b>G</b>	<b>1</b>
Critical review of the current literature related to veterinary anesthesiology with a focus on study design, methodology and interpretation. Prereq: DVM or equivalent, or permission of the instructor.			
<b>8896.09</b>	<b>Comparative Ocular Histology I</b>	<b>G</b>	<b>1</b>
Familiarizes the student with comparative ocular histology and ocular histopathology. Illustrative histopathologic case material will be used to facilitate discussion of disease processes. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.10</b>	<b>Comparative Ocular Histology II</b>	<b>G</b>	<b>1</b>
Familiarizes the student with comparative ocular histology and ocular histopathology. Illustrative histopathologic case material will be used to facilitate discussion of diseases processes. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.11</b>	<b>Comparative Ocular Histology III</b>	<b>G</b>	<b>1</b>
Familiarizes the student with comparative ocular histology and ocular histopathology. Illustrative histopathologic case material will be used to facilitate discussion of diseases processes. Prereq: DVM or equivalent, or permission of instructor.			
<b>8896.12</b>	<b>Advanced Comparative Ophthalmology</b>	<b>G</b>	<b>1</b>
Familiarizes the student with comparative ophthalmology by critical review and evaluation of the current and past biomedical literature with emphasis on study design, methodology, and data interpretation. Prereq: DVM or equivalent, or permission on instructor.			
<b>8896.13</b>	<b>Advanced Comparative Anesthesiology: Classic Literature Review</b>	<b>G</b>	<b>1</b>
A small group course based on discussion of the classic anesthesia literature with a focus on study design, methodology, and interpretation. Course format involves discussion of selected historical papers from journals pertaining to anesthesia.			
<b>8896.14</b>	<b>Advanced Farm Animal Surgery</b>	<b>G</b>	<b>2</b>
An in depth study of special topics including the surgical conditions and surgical treatments of cattle, small ruminants, and pigs. Prereq: Resident/grad students in large animal, or permission of team leader.			
<b>8896.15</b>	<b>Advanced Topics in Anesthesiology: Respiratory Pathophysiology</b>	<b>G</b>	<b>1</b>
A small group course based on discussion of respiratory pathophysiology as it pertains to anesthetic practice. Course format involves review and presentation of information from "Pulmonary Pathophysiology" by West, other textbooks and journals. Prereq: Resident in Veterinary Anesthesiology, or permission of team leader.			
<b>8896.16</b>	<b>Advanced Topics in Anesthesiology: Anesthetic Uptake and Action</b>	<b>G</b>	<b>1</b>
A small group course based on discussion of mechanism of action of inhaled anesthetics, uptake, solubility, and metabolism. Course format involves review and presentation of information from "Anesthetic Uptake and Action" by Eger and other sources. Prereq: Grad standing. This course is designed for residents in Veterinary Anesthesiology but others may be considered upon petition to the team leader.			

<b>8896.17</b>	<b>Journal Review in Comparative Emergency and Critical Care</b>	<b>G</b>	<b>1</b>
Familiarize the student with comparative Emergency and Critical Care. The current and past primary literature from selected peer-reviewed journals will be critically reviewed with regards to study design, methodology and data interpretation. Prereq: DVMs in residency/graduate programs, or by petition of the team leader.			
<b>8896.18</b>	<b>Book Club in Comparative Emergency and Critical Care 1 - Renal Physiology</b>	<b>G</b>	<b>1</b>
Covers the principles and practice of applied renal physiology as relevant to residents in the Emergency and Critical Care residency program. Prereq: DVMs in residency/graduate programs, or by petition of the team leader.			
<b>8896.19</b>	<b>Book Club in Comparative Emergency and Critical Care 2-Coagulation and Specific Systems</b>	<b>G</b>	<b>1</b>
Covers basic and applied physiology of coagulation/coagulation disorders. It will also cover applied systems physiology (GI, reproductive, neurologic, ophthalmologic) and nutrition as relevant to Critical Care Medicine. Prereq: DVMs in residency/graduate programs, or by petition of the team leader.			
<b>8896.20</b>	<b>Book Club in Comparative Emergency and Critical Care III-App Respiratory Physiology and SIRS/Sepsis</b>	<b>G</b>	<b>1</b>
Covers the principles and practice of applied respiratory physiology. It will also cover the pathophysiology and management of SIRS and sepsis as relevant to residents in the Emergency and Critical Care residency program. Prereq: DVMs in residency/Grad programs, or by petition of the team leader.			
<b>8896.21</b>	<b>Book Club in Comparative Emergency and Critical Care IV-Shock, Trauma, and CPR</b>	<b>G</b>	<b>1</b>
Covers the physiology and management of trauma and shock. It will also cover the principles and practice of cardiopulmonary resuscitation as relevant to residents in the Emergency and Critical Care residency program. Prereq: DVMs in residency/Grad programs, or petition of team leader.			
<b>8896.22</b>	<b>Book Club in Comparative Emergency and Critical Care 5-Applied Cardiovascular Physiology</b>	<b>G</b>	<b>1</b>
Covers the principles and practice of applied cardiovascular physiology and therapeutics as relevant to residents in the Emergency and Critical Care residency program. Prereq: DVMs in residency/Grad programs, or by petition of the team leader.			
<b>8896.23</b>	<b>Book Club in Comparative Emergency and Critical Care 6-Mech Ventilation, Monitoring, Inflammation</b>	<b>G</b>	<b>1</b>
Covers the principles and practice of patient monitoring in the ICU, the use of mechanical ventilation, and the pathophysiology of inflammation as relevant to residents in the Emergency and Critical Care residency program. Prereq: DVMs in residency/Grad programs, or by petition of the team leader.			
<b>8896.24</b>	<b>Advanced Topics in Anesthesiology: Anesthesia Equipment</b>	<b>G</b>	<b>1</b>
A small group course based on discussion of the current equipment used in anesthetic practice. Course format involves review and presentation of information from "Understanding Anesthesia Equipment" as well as from other textbooks and journals. Prereq: Veterinary Anesthesiology Residents only, others by permission from team leader.			
<b>8896.25</b>	<b>Advanced Topics in Anesthesiology: Respiratory Physiology</b>	<b>G</b>	<b>1</b>
A small group course based on discussion of respiratory physiology as it pertains to anesthetic practice. Course format involves review and presentation of information from "Respiratory Physiology" by West, as well as other textbooks and journals. Prereq: Veterinary Anesthesiology resident, or permission of team leader.			
<b>8896.26</b>	<b>Advanced Topics in Anesthesiology: Cardiovascular Physiology and Pharmacology for Anesthesia</b>	<b>G</b>	<b>1</b>
A small group course based on discussion of respiratory physiology as it pertains to anesthetic practice. Course format involves review and presentation of information from "Respiratory Physiology" by West, as well as other textbooks and journals. Prereq: Veterinary Anesthesiology Residents, or permission of team leader.			
<b>8896.27</b>	<b>Large Animal Surgery Current Literature</b>	<b>G</b>	<b>1</b>
This course will be presented in journal club style, with participants presenting current literature related to equine and farm animal surgery. Repeatable to a maximum of 3 or hrs.			
<b>8897</b>	<b>Advanced topics in veterinary neurology: Neuromuscular disease</b>	<b>G</b>	<b>3</b>
This course is designed to provide advanced, graduate level exposure to electrodiagnostic techniques and diagnosis and treatment of neuromuscular diseases in veterinary medicine. Prereq: Enrollment in the OSU CVM Veterinary Neurology combined residency and graduate program; or permission of the instructor.			
<b>8999</b>	<b>Research in Veterinary Clinical Sciences</b>	<b>G</b>	<b>1 - 15</b>
Research for dissertation purposes only. Repeatable. This course is graded S/U.			

## 456 Veterinary Medicine

**6510 Veterinary Preventive Medicine I: Introduction to Epidemiology and Population Systems** V 2½

Descriptive and analytical epidemiology, including design, analysis, and interpretation of results; host, agent, and environmental factors in disease causation.  
Prereq: 1st yr standing in Veterinary Medicine program.

**6520 Gross Anatomy I** V 3½

Body and its components as forms, relationships, and mechanical functioning.  
Prereq: 1st yr standing in Veterinary Medicine program.

**6521 Gross Anatomy II** V 4

Study of the structure and function of body systems of domesticated herbivores using the equine species as a model for dissection. Common anatomic features and species specific differences of the various systems are highlighted.  
Prereq: 1st yr standing in Veterinary Medicine program.

**6525 Introduction to Veterinary Diagnostic Radiology** V 1

Radiation physics and safety; basic principles of image interpretation; normal radiographic anatomy of small and large animals.  
Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 525 or 526.

**6530 Comparative Structure and Function of Tissues** V 2½

Correlated study of the development, microscopic structure, and ultrastructural morphology of tissues.  
Prereq: 1st yr standing in Veterinary Medicine program.

**6540 Structure and Function of Cells** V 2

Introduction to structure and function at cellular level including physiological principles of homeostasis, energetics, metabolism, enzymes, nutrition, and growth.  
Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 540.

**6550.01 Comparative Biology of Disease 1: General Pathology and Immunology** V 3

An interdisciplinary study of the interactions between disease producing agents, body systems, tissues, cells, subcellular units, and selected drugs and toxins.  
Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 550.01.

**6550.02 Comparative Biology of Disease II: Animal Pathogens** V 3

An interdisciplinary study of the interactions between disease producing agents, body systems, tissues, cells, subcellular units, and selected drugs and toxins.  
Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 550.02.

**6561 Principles of Veterinary Pharmacology** V 2

Basic principles of pharmacology, pharmacodynamics, pharmacokinetics, and therapeutics.  
Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 561.

**6565 Introduction to Animal Welfare** V 1

Historical, philosophical and scientific developments that have led to our current understanding of animal welfare and how it should be assessed. Welfare issues related to the different uses of animals in society.  
Prereq: 2nd yr standing in Veterinary Medicine program.

**6570.01 Introduction to Clinical Veterinary Medicine** V 1

Introduction to the basic concepts and skills required to practice clinical veterinary medicine, including the approach to a veterinary case, and some basic psychomotor, surgical and cognitive skills required by clinicians.  
Prereq: 1st yr standing in Veterinary Medicine program. This course is graded S/U.

**6570.02 Clinical Veterinary Medicine Experience** V 1

Experiential learning course allowing students to be immersed in various clinical settings to observe and participate in the clinical management of cases, as well as to explore alternative careers in the veterinary profession.  
Prereq: 2nd yr standing in Veterinary Medicine program. This course is graded S/U.

**6570.03 Clinical Reasoning and Decision-Making** V 2

Serves as a capstone experience to provide students with the opportunity to integrate the clinical veterinary skills and knowledge required to "think and behave like a clinician" in preparation for their clinical year.  
Prereq: 3rd yr standing in Veterinary Medicine program.

**6600 Cardiovascular System** V 3

A comparative study of the structure, function, and dysfunction of the cardiovascular system including arrhythmias, abnormal flow, congenital disease, etiologic agents, diagnostic methods, and therapeutic approaches.  
Prereq: 2nd yr standing in Veterinary Medicine program. Not open to students with credit for 600.

**6601 Respiratory System** V 3

A comparative study of the structure, function, and dysfunction of the respiratory system including reaction to injury, ventilation defects, pneumonias, neoplastic disease, radiological diagnosis, and therapeutic approaches.  
Prereq: 2nd yr standing in Veterinary Medicine program. Not open to students with credit for 601.

**6602 Urinary System** V 2½

A comparative study of the structure, function, and dysfunction of the urinary system including diseases of the kidney, bladder, and urethra, and their diagnosis and treatment.  
Prereq: 2nd yr standing in Veterinary Medicine program.

**6603 Nervous System** V 3½

Comparative study of the structure, function and dysfunction of the nervous system including functional anatomy, pathology, and clinical evaluation of the brain and spinal cord.  
Prereq: 2nd yr standing in Veterinary Medicine program.

**6604 Endocrine System** V 2½

A comparative study of the anatomy, physiology, and pathology of the major endocrine systems and an introduction to diagnosis and treatment of endocrine disorders.  
Prereq: 2nd yr standing in Veterinary Medicine program.

**6605 Reproductive System** V 3

A comparative study of the structure, function, and dysfunction of the reproductive system including etiologic, pathogenic, pathophysiological, therapeutic, and preventive aspects of reproductive diseases.  
Prereq: 2nd yr standing in Veterinary Medicine program. Not open to students with credit for 605.

**6606 Integumentary System** V 3

Study of the structure and function of the skin and ears as a basis for studying diseases of these organs. A problem-based approach to recognition, diagnosis and treatment of skin and ear diseases of domestic animals.  
Prereq: 2nd yr standing in Veterinary Medicine program. Not open to students with credit for 606.

**6607 Musculo-skeletal System** V 2½

A comparative study of the structure, function, and dysfunction of the musculoskeletal system including congenital and acquired diseases, their radiographic diagnosis, treatment, and prevention.  
Prereq: 1st yr standing in Veterinary Medicine program.

**6609 Digestive System** V 3½

A comprehensive study of the gastrointestinal system of domestic animals.  
Prereq: 2nd yr standing in Veterinary Medicine program.

**6610.01 Clinical Veterinary Parasitology** V 1

Clinical aspects of parasitic infections of cats, dogs, horses, cattle and small ruminants, including symptoms diagnosis treatments, control measures and zoonotic concerns.  
Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 610.

**6610.02 Applied Clinical Veterinary Parasitology** V 1

Laboratory methods used in the diagnosis of parasitic infections in small and large animals.  
Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 616.

**6611 Veterinary Preventive Medicine III: Public Veterinary Practice** V 2

Application of veterinary preventive medicine in society with an emphasis of the importance of the veterinary profession in safeguarding animal and public health.  
Prereq: Third year standing in VMColl.

**6612 Introduction to Comparative Veterinary Ophthalmology** V 2

Comparative anatomy, histology and physiology of the normal and abnormal eye and adnexa of domestic animals.  
Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 612.

**6614.01 Professional Development I-A** V 1

Introduction to the profession, ethics, and a variety of communication and self management information and skills necessary to be successful in veterinary school, the veterinary profession and in life.  
Prereq: First year standing in VMColl. Not open to students with credit for 560.01, 560.02, or 614.01. This course is graded S/U.

**6614.02 Professional Development I-B** V 1

Provides students with an introduction to leadership and builds on the foundations of ethics principles. Additional information on communication and self management is provided.  
Prereq: First year standing in VMColl. Not open to students with credit for 614.02. This course is graded S/U.

**6614.03 Professional Development II-A** V 1

Introduction to social awareness and relationship management, continued discussion of leadership development and application of ethics to build on the foundations of ethics principles.  
Prereq: Second year standing in VMColl. Not open to students with credit for 614.03.

**6614.04 Professional Development II-B** V 1

Advanced learning in social awareness, relationship management, leadership development and application of ethics to build on the foundation of ethics principles.  
Prereq: Second year standing in VMColl. Not open to students with credit for 614.04.

<b>6614.05</b>	<b>Professional Development III-A</b>	<b>V</b>	<b>1</b>
Career planning including establishing employment goals, preparing a budget and managing student debt. Resume development, interviewing strategies, evaluating employment offers, negotiation skills and understanding employment contracts. Prereq: 3rd yr standing in VMColl. Not open to students with credit for 614.05			
<b>6614.06</b>	<b>Professional Development III-B</b>	<b>V</b>	<b>2</b>
Continued application of ethical decision making, expression of views through case discussions and writing assignments. Foundation in laws regulating the practice of veterinary medicine and regulating animals in society. Prereq: 3rd yr standing in VMColl. Not open to students with credit for 614.06.			
<b>6616.01</b>	<b>Veterinary Clinical Skills I-A</b>	<b>V</b>	<b>1½</b>
Practical laboratory, providing students opportunities to become proficient in a wide array of hands-on skills relevant to veterinary clinical practice. Topics include basic surgical principles, general examination, as well as animal handling and management. Prereq: Enrollment in DVM program.			
<b>6616.02</b>	<b>Veterinary Clinical Skills I-B</b>	<b>V</b>	<b>1½</b>
Practical laboratory, providing students opportunities to become proficient in a wide array of hands-on skills relevant to veterinary clinical practice. Topics include basic surgical principles, general examination, as well as animal handling and management.			
<b>6616.03</b>	<b>Veterinary Clinical Skills II-A</b>	<b>V</b>	<b>1½</b>
Practical laboratory, providing students opportunities to become proficient in a wide array of hands-on skills relevant to veterinary clinical practice. Topics include basic surgical principles, general examination, animal handling and management, as well as basic diagnostic and treatment skills. Prereq: Enrollment in DVM program.			
<b>6616.04</b>	<b>Veterinary Clinical Skills II-B</b>	<b>V</b>	<b>1½</b>
Practical laboratory, providing students opportunities to become proficient in a wide array of hands-on skills relevant to veterinary clinical practice. Topics include basic surgical principles, general examination, animal handling and management, as well as basic diagnostic and treatment skills.			
<b>6616.05</b>	<b>Veterinary Clinical Skills III-A</b>	<b>V</b>	<b>1½</b>
Practical laboratory, providing students opportunities to become proficient in a wide array of hands-on skills relevant to veterinary clinical practice. Topics include surgical principles, and procedures common in diagnosis and treatment of animals. Prereq: Enrollment in DVM program.			
<b>6616.06</b>	<b>Veterinary Clinical Skills III-B</b>	<b>V</b>	<b>1½</b>
Practical laboratory, providing students opportunities to become proficient in a wide array of hands-on skills relevant to veterinary clinical practice. Topics include surgical principles, and procedures common in diagnosis and treatment of animals. Prereq: Enrollment in the DVM Program.			
<b>6618</b>	<b>Clinical Pathology</b>	<b>V</b>	<b>4</b>
Introduction to current concepts of clinical pathology (hematology, hemostasis, clinical chemistry, urinalysis, and cytology) and quality assurance. Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 618.			
<b>6635</b>	<b>Veterinary Preventive Medicine IV: Emerging Diseases</b>	<b>V</b>	<b>1</b>
This veterinary course serves two roles: 1) increased awareness of emerging and exotic diseases of animals (EEDA) and the response to them and 2) initial accreditation training (IAT).			
<b>6641</b>	<b>Introduction to Animal Behavior</b>	<b>V</b>	<b>2</b>
Basic concepts and applications of animal behavior with implications for welfare. Emphasis on domesticated animals, with some coverage of laboratory and wild animals in captivity. Prereq: 1st yr standing in Veterinary Medicine program. Not open to students with credit for 641.			
<b>6646</b>	<b>Veterinary Preventive Medicine II: Zoonotic Diseases</b>	<b>V</b>	<b>2</b>
Recognition of zoonotic diseases in the US, host species, methods of transmission, risk factors for exposure, measures for control, prevention, and eradication. Prereq: Second year standing in VMColl. Not open to students with credit for 646.			
<b>7190.01</b>	<b>Applied Veterinary Medicine Experience</b>	<b>V</b>	<b>1 - 16</b>
Field or laboratory study in the various areas of veterinary medicine through an approved experience with qualified professionals. Prereq: 4th yr standing in Veterinary Medicine Program. Repeatable to a maximum of 22 cr hrs or 11 completions. This course is graded S/U.			
<b>7190.02</b>	<b>Applied Veterinary Medicine Experience</b>	<b>V</b>	<b>2 - 16</b>
Field or laboratory study in the various areas of veterinary medicine through an approved experience with qualified professionals. Prereq: 4th yr standing in Veterinary Medicine Program. Repeatable to a maximum of 22 cr hrs or 11 completions.			
<b>7526</b>	<b>Veterinary Diagnostic Imaging</b>	<b>V</b>	<b>3</b>
The detection, description, differential diagnosis, and case management of radiographic abnormalities. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 616.			

<b>7562</b>	<b>Introduction to Veterinary Anesthesiology</b>	<b>V</b>	<b>2</b>
Introduction to veterinary anesthesia. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 562.			
<b>7563</b>	<b>Introduction to Surgery</b>	<b>V</b>	<b>2</b>
Introduction to surgery. Prereq: Third year standing in VMColl. Not open to students with credit for 563.			
<b>7564</b>	<b>Clinical Microbiology and Pharmacology of Antimicrobial Agents</b>	<b>V</b>	<b>1</b>
Detection and differential diagnoses of bacterial and fungal disease in domestic species and clinical pharmacology of antimicrobial and antifungal agents used in veterinary medicine. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 564.			
<b>7613</b>	<b>Veterinary Emergency and Critical Care Medicine</b>	<b>V</b>	<b>2</b>
Principles and applications of fluid therapy and emergency and critical care medicine in small and large animals. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 613.			
<b>7615.01</b>	<b>Small Animal Operative Practice</b>	<b>V</b>	<b>4</b>
Clinical instruction in and application of surgical techniques and treatment of small animal diseases. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 615.01.			
<b>7615.02</b>	<b>Small Animal Medicine Diagnostic Techniques and Procedures</b>	<b>V</b>	<b>1</b>
Clinical instruction in and application of medical diagnostic and therapeutic techniques in small animals. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 615.02.			
<b>7616</b>	<b>Farm Animal Medicine Diagnostic Techniques, and Procedures</b>	<b>V</b>	<b>1</b>
Instruction and self-study in minor techniques for large animals. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 616.			
<b>7617</b>	<b>Equine Medicine Diagnostic Techniques, and Procedures</b>	<b>V</b>	<b>1</b>
Laboratory and self-instruction in equine techniques. Prereq: 3rd yr standing in Veterinary Medicine program. Not open to students with credit for 617.			
<b>7700.01</b>	<b>Applied Veterinary Medicine: Community Practice</b>	<b>V</b>	<b>2</b>
Clinical skills taught by physical exam, diagnosis and treatment of client-owned animals. Disease prevention and client education are emphasized including nutrition, vaccinations, parasite control, dentistry, animal behavior, and screening tests. Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.01. Repeatable to a maximum of 12 cr hrs.			
<b>7700.02S</b>	<b>Applied Veterinary Medicine: Shelter Medicine and Surgery</b>	<b>V</b>	<b>2</b>
Clinical experience with shelter dogs and cats at the Capital Area Humane Society including anesthesia and general surgery, health and behavior screening, and infectious disease surveillance and prevention. Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs.			
<b>7700.03</b>	<b>Applied Veterinary Medicine: Small Animal Internal Medicine</b>	<b>V</b>	<b>2</b>
Patient diagnosis and management in the small animal internal medicine service, including patient care responsibility, client communication, and interactions with all members of the patient care team. Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.02. Repeatable to a maximum of 12 cr hrs.			
<b>7700.04</b>	<b>Applied Veterinary Medicine: Small Animal Surgery - Soft Tissue</b>	<b>V</b>	<b>2</b>
Clinical experience in the management of surgical diseases of small animal patients. Students will be responsible for the preoperative, operative, and postoperative treatment for animals presented to the small animal surgery soft tissue service. Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.03. Repeatable to a maximum of 12 cr hrs.			
<b>7700.05</b>	<b>Applied Veterinary Medicine: Small Animal Surgery - Orthopedics</b>	<b>V</b>	<b>2</b>
Clinical experience in the surgical management of orthopedic diseases of small animals. Students will be responsible for the preoperative, operative, and postoperative treatment for animals presented to the small animal surgery orthopedics service. Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.03. Repeatable to a maximum of 12 cr hrs.			

## 458 Veterinary Medicine

### 7700.06 Applied Veterinary Medicine: Farm Animal Medicine and Surgery V 2

Diagnosis, management, and prevention of medical and surgical diseases of farm animals. Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.04. Repeatable to a maximum of 12 cr hrs.

### 7700.07 Applied Veterinary Medicine: Large Animal Ambulatory Services V 2

Provides students with experience working in a large animal clinic, including patient care and business management aspects. Provides instruction in production medicine and its role in modern agriculture.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.10. Repeatable to a maximum of 12 cr hrs.

### 7700.08 Applied Veterinary Medicine: Equine Medicine V 2

Application of the principles of diagnosis, treatment, and prevention of medical diseases of horses.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.05. Repeatable to a maximum of 12 cr hrs.

### 7700.09 Applied Veterinary Medicine: Equine Surgery V 2

Application of the principles of diagnosis, treatment, and prevention of surgical diseases of horses.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.05. Repeatable to a maximum of 12 cr hrs.

### 7700.10 Applied Veterinary Medicine: Equine Community Practice V 2

Application of the principles of diagnosis, treatment, and prevention of diseases of horses.

Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs.

### 7700.11 Applied Veterinary Medicine: Equine Emergency and Critical Care Medicine V 2

Provides students supervised experience in hospital-based emergency and critical care experience with horses.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.16. Repeatable to a maximum of 12 cr hrs.

### 7700.12 Applied Veterinary Medicine: Radiology V 2

Students participate in all aspects of diagnostic radiology and become proficient in obtaining diagnostic radiographs, develop basic film reading skills, and understand radiology's role in clinical decision making and case management.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.07. Repeatable to a maximum of 12 cr hrs.

### 7700.13 Applied Veterinary Medicine: Clinical Anesthesiology V 2

Supervised experience in hospital anesthesia practice. Students assess large and small animals for anesthesia, select proper anesthesia protocols, learn proper use of anesthetic equipment, and induce, maintain, monitor, and recover patients.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.09. Repeatable to a maximum of 12 cr hrs.

### 7700.14 Applied Veterinary Medicine: Applied Pathology V 2

Students will perform necropsies of major domestic species. They will learn to recognize and describe common gross pathologic lesions and become familiar with the role of histopathology in assessment of necropsy material.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.14. Repeatable to a maximum of 12 cr hrs.

### 7700.15 Applied Veterinary Medicine: Small Animal Critical Care V 2

Evaluation, monitoring and management of small animal patients in the intensive care unit and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.11. Repeatable to a maximum of 12 cr hrs.

### 7700.16 Applied Veterinary Medicine: Small Animal Emergency V 2

Evaluation and management of small animal patients presented to the emergency service and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.11. Repeatable to a maximum of 12 cr hrs.

### 7700.17 Applied Veterinary Medicine: Ophthalmology V 2

Application of principles of diagnosis and treatment of diseases of the eye to animal patients, including dogs, cats, horses, and farm animals.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.12. Repeatable to a maximum of 12 cr hrs.

### 7700.18 Applied Veterinary Medicine: Dermatology V 2

Patient diagnosis and management in the dermatology service, including patient care, client communication, and interactions with all members of the patient care team. Students will build on and apply knowledge gained in the pre-clinical curriculum.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.15. Repeatable to a maximum of 12 cr hrs.

### 7700.19 Applied Veterinary Medicine: Cardiology V 2

Clinical instruction in diagnosis, treatment and prevention of cardiovascular diseases of animals, including patient care, client communication, and interactions with all members of the patient care team.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.19. Repeatable to a maximum of 12 cr hrs.

### 7700.20 Applied Veterinary Medicine: Small Animal Neurology V 2

Patient diagnosis and management in the neurology service, including patient care responsibility, client communication, and interactions with all members of the patient care team.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.20. Repeatable to a maximum of 12 cr hrs.

### 7700.21 Applied Veterinary Medicine: Small Animal Oncology V 2

Patient diagnosis and management in the oncology service, including patient care, cytology and imaging interpretation, client communication, and interactions with all members of the patient care team.

Prereq: 4th yr standing in Veterinary Medicine program. Not open to students with credit for 700.22. Repeatable to a maximum of 12 cr hrs.

### 7700.22 Applied Veterinary Medicine: Theriogenology V 2

Clinical experience with diagnosis and treatment of reproductive disorders of dogs, cats, cattle and horses, including assisted reproductive procedures.

Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs.

### 7700.24 Applied Veterinary Medicine: Preventive Medicine V 2

Clinical experience in population-based medicine, including visits to farms, humane societies, and animal laboratory facilities. Students will learn to recognize, analyze, and manage diseases affecting populations by applying epidemiologic principles.

Prereq: 4th yr standing in Veterinary Medicine program. Repeatable to a maximum of 12 cr hrs.

### 7700.26 Veterinary Surgical Oncology V 2

Senior veterinary students will learn and understand a comprehensive approach to cancer management in small animals. They will learn the principles of surgical oncology, postoperative management, and follow-up care.

Prereq: 4th year standing in Veterinary Medicine. Repeatable to a maximum of 10 cr hrs.

### 7720.01 Applied Veterinary Medicine: Community Practice Clerkship V 2

Clinical skills taught by physical exam, diagnosis and treatment of client-owned animals in a private practice setting by participating practicing veterinarians. Disease prevention and client education are emphasized including nutrition, vaccinations, parasite control, dentistry, animal behavior, and screening tests.

Prereq: Fourth year standing in Veterinary Medicine professional degree program. Repeatable to a maximum of 12 cr hrs.

### 7720.02 Equine Clinical Clerkship V 2

The purpose of this course is to provide students with primary care experience to develop clinical skills taught by physical exam, diagnosis and treatment of client-owned animals.

Disease prevention and client education are emphasized including wellness exams, vaccinations, parasite control, dentistry, lameness, and emergency care.

Prereq: Fourth year standing in Veterinary Medicine professional degree program. Repeatable to a maximum of 12 cr hrs.

### 7720.03 Farm Animal Practice Clerkship V 2

The purpose of this course is to provide students with primary care experience to develop clinical skills taught by physical exam, diagnosis and treatment of client-owned animals.

Disease prevention and client education are emphasized including wellness exams, vaccinations, parasite control, herd health, milk quality, nutrition, and lameness.

Prereq: Fourth year standing in Veterinary Medicine professional degree program. Repeatable to a maximum of 12 cr hrs.

## Veterinary Preventive Medicine

### 5721 Introduction to Zoonoses U G 2

This course is focused on providing an overview of the basic characteristics of common and emerging diseases that are shared between humans and animals; these diseases are defined as zoonotic.

Prereq: AnimSci 3170, 3270, or Micrbio 4000, or equiv., or permission of instructor.

### 7193.01 Individual Studies in Veterinary Preventive Medicine G V 1 - 8

Laboratory and library investigations of animal disease problems involving veterinary preventive medicine. Covers the research experiences for Masters students and Doctoral Students prior to candidacy.

Repeatable to a maximum of 60 cr hrs or 60 completions. This course is graded S/U.

### 7193.02 Independent Study in Veterinary Preventive Medicine G V 1 - 2

Laboratory and library investigations of disease problems involving veterinary preventive medicine. The faculty and student agree on a course project suitable for a letter grade.

Prereq: Grad or Prof standing in Veterinary Medicine program, and permission of instructor. Repeatable to a maximum of 5 cr hrs.

### 7194.01 Group Studies in Veterinary Preventive Medicine G V 1

Group studies course in topic areas of veterinary preventive medicine.

Prereq: DVM or equiv., or Grad standing, or Veterinary Medicine program standing. This course is graded S/U.

## 7194.02 Group Studies in Veterinary Preventive Medicine G V 3

Group studies course in topic areas of veterinary preventive medicine.  
Prereq: Grad standing, or Veterinary Medicine program standing, or DMV, or equiv.  
Repeatable to a maximum of 15 or hrs.

## 7612 Nutrition of Food Animals and Equine V 3

Nutritional diseases and feeding practices for food-producing animals and equine.  
Prereq: First-year, second semester, or second-year standing in veterinary medicine program.

## 7710 Ecosystem Health Conservation Medicine G V 3

Principles and application of ecosystem health and conservation medicine will be examined using the One Health One Medicine paradigm. This course may also serve as a component of a non-degree certificate for external veterinarians interested in gaining training in ecosystem health, conservation medicine and/or One Health.  
Prereq: CPHR of 2.50 or above; and Grad standing or, 2nd, or 3rd yr standing in Veterinary Medicine program.

## 7710.54 Applied Veterinary Medicine: Laboratory Animal Medicine V 2

This course is designed to introduce fourth year veterinary students to all facets of laboratory animal medicine and its various disciplines (research, management, clinical medicine, diagnostics, husbandry, surgery and pathology).  
Prereq: Fourth-year standing in Veterinary Medicine Program. Repeatable to a maximum of 12 or hrs. This course is graded S/U.

## 7710.55 Applied Veterinary Medicine: Beef and Dairy Production Medicine V 2

Students will accompany veterinarians as they provide routine preventive and clinical services to dairy and beef cattle. Dairy and production medicine topics will be covered. Students are expected to participate in the treatment of patients.  
Prereq: 4th yr standing in the Veterinary Medicine Program. Repeatable to a maximum of 6 or hrs. This course is graded S/U.

## 7710.56 Applied Veterinary Medicine: Capstone Rotation in Dairy Production Medicine V 2

A two-week capstone clinical rotation in dairy veterinary production medicine. One week is devoted to acquiring, assimilating, and solidifying the principles of dairy production medicine through limited didactic instruction and visits to dairy farms. One week is devoted to acquiring the fundamentals of reproductive ultrasound through didactic instruction and extensive practice.  
Prereq: 4th yr standing in the Veterinary Medicine Program. This course is graded S/U.

## 7717 Introduction to Shelter Medicine V 1

An introduction to shelter medicine. Material in the class will focus primarily on basic herd health principles and basic operations within a shelter environment.

## 7719 Microbiome in Health and Disease G 2

This course is designed to introduce students to host-associated microbial communities (specifically human and animal hosts) and their roles in host health and disease.

## 7720 Laboratory Animal Medicine G V 2

Familiarizes students with regulatory and compliance issues, management of animal facilities, the scientific basics of laboratory animal medicine, and the design and performance of animal experiments.  
Prereq: Not open to students with credit for 721.

## 7721 Epidemiology of Zoonotic Diseases G V 3

Basic epidemiology of important zoonotic diseases, focusing on their etiology and epidemiology. Common manifestations in humans and animals, diagnostic procedures, and specific preventive and control measures.  
Prereq: 2nd, 3rd, or 4th yr standing in Veterinary Medicine program. Not open to students with credit for 721.

## 7722 Foodborne Diseases, Food Animal Production Systems, and Food Safety G V 3

Overview of how the food chain for the most common products of animal origin works, with special emphasis in pre-harvest safety, describes most common food-borne bacterial and viral diseases, antimicrobial resistance, HACCP.  
Prereq: Grad standing or enrollment in Veterinary Medicine Program. Not open to students with credit for 722.

## 7723 Biosecurity, Emergency Response & Outbreak Investigation G V 2

An overview of biosecurity, with special emphasis on bioterrorism, preparedness, emergency response, risk assessment, and management of zoonotic and foreign animal disease outbreaks. Regulations and regulatory agencies will also be presented.  
Prereq: 1st (second semester), 2nd, or 3rd yr standing in Veterinary Medicine program, or Grad standing.

## 7724.01 Environmental Health at the Human-Animal Interface G V 1

This course will provide an overview of environmental health issues related to human and animal interactions and animal agriculture. Topics will include water and air quality, waste management, occupational safety, and environmental toxicology.

## 7725 Applied Veterinary Data Analysis G 2

Application of statistical methods and procedures that are introduced in the basic biostatistics courses offered by CPH; structure of the course will be interactive in a laboratory setting for veterinary public health science students.  
Prereq: PubHBio 6210.

## 7726 Preventive Medicine Research Design and Methods G 2

Understanding the process used to plan and execute research studies is crucial for students completing their own research projects. This course will introduce students to research methods and designs commonly used in veterinary medicine and public health research.

## 7727 Interdisciplinary Colloquium in Food Safety G 1

Weekly graduate seminar on current and emerging topics in food safety. Presentations from OSU faculty and invited external experts from industry, academia and government.  
This course is graded S/U. Cross-listed in FdScTe.

## 7730 Emerging Zoonotic Diseases in a Global Context G V 2

Overview of the most important emerging zoonotic diseases in different geographical regions of the world, focusing in their local epidemiology, recent outbreaks, prevention, and potential impact in the United States.  
Prereq: 1st (second semester), 2nd, or 3rd yr standing in Veterinary Medicine program; or grad standing. Not open to students with credit for 730.

## 7735 Veterinary Practice Management G V 1

Provides business skills, knowledge, and information necessary to successfully operate a veterinary practice.  
Prereq: Enrollment in DVM program. Not open to students with credit for 750.

## 7745 Basic Exotic Animal Medicine -- Non Mammalian V 1

Provide a basic background for a new graduate veterinarian regarding exotic species commonly treated in a companion animal setting. Non-mammalian species will be covered (fish, amphibians, reptiles).  
Prereq: 1st (second semester), 2nd, or 3rd yr standing in Veterinary Medicine program, or Grad standing. Not open to students with credit for VMColl 608.

## 7760 Opportunities in Global Veterinary Medicine and Public Health G V 1

This elective course is designed as a preparatory course for veterinary professional (DVM) curriculum and Masters of Public Health, MPH-VPH students who plan to engage in international and non-traditional veterinary medicine and public health.  
This course is graded S/U.

## 7761 Tropical Animal Husbandry and Health G V 1 - 3

This elective course is designed as a practical international experience for DVM and MPH students who plan to engage in international and non-traditional veterinary medicine and public health.  
This course is graded S/U.

## 7770 Zoo and Wildlife Medicine I G V 1

General concepts and principles related to zoo and wildlife medicine. Allows Veterinary students to increase their exposure to nontraditional fields of practice.  
Prereq: Grad or professional standing in Veterinary Medicine program. Not open to students with credit for 770. This course is graded S/U.

## 7771 Zoo and Wildlife Medicine II G V 2

Intended for students who have an interest in advancing their clinical and practical knowledge of zoo and wildlife medicine.  
Prereq: 7770; and 1st (second semester), 2nd, 3rd, or 4th yr standing in Veterinary medicine program; or grad standing. Not open to students with credit for 771.

## 7773 Bovine Palpation V 3

Laboratory and lecture based course designed to familiarize the student with the techniques of bovine reproductive examination, rectal palpation, ultrasound, pregnancy diagnosis and management.  
Prereq: VetClin 7746 and VMColl 6605, and 3rd yr standing in Veterinary Medicine program, and a Food Animal, Mixed Animal, or Individualized Career Area of Emphasis, and permission of instructor. Not open to students with credit for 796.17.

## 7774 Bovine Theriogenology G V 1

Physiology of the estrous cycle and synchronization strategies in the bovine. Techniques such as artificial insemination and embryo transfer, causes for embryonic loss, obstetric procedures, transition period, and bull fertility will be covered.  
Prereq: 3rd yr standing in Veterinary Medicine program; or DVM or equiv; or permission of instructor. Not open to students with credit for 796.18.

## 7775 Interactive Experiences in Laboratory Animal Medicine V 1

Provides students with an opportunity to obtain practical and clinical experience with traditional laboratory animals and pocket pet species. Coursework is primarily hands-on with supplemental online and didactic material.  
Prereq: 7720, and Professional standing in Veterinary Medicine program.

## 7776 Dairy Herd Management and Preventive Medicine G V 2

Applications of preventive medicine practices at the dairy herd level (small or large). Herd health programs, transition period, and laboratory practices in mastitis control will be covered.  
Prereq: 2nd or 3rd yr standing in Veterinary Medicine program; or grad standing. Not open to students with credit for 796.06.

## 460 Veterinary Preventive Medicine

<b>7778</b>	<b>Topics in Dairy Production Medicine</b>	<b>G V</b>	<b>1</b>
Expose students to leaders in the dairy industry and production medicine as well as to ideas that they may not be exposed to anywhere else in the veterinary professional curriculum. Prereq: Grad or professional standing in Veterinary Medicine program. Not open to students with credit for 796.16. This course is graded S/U.			
<b>7780</b>	<b>Veterinary Forensics</b>	<b>V</b>	<b>2</b>
Covers forensic examination of living and deceased victims as well as proper evidence collection and presentation to aid in the conviction of animal abusers. Prereq: Professional standing in Veterinary Medicine program.			
<b>7781</b>	<b>Advanced Topics in Zoo and Wildlife Medicine</b>	<b>G</b>	<b>1</b>
Designed for residents in ecosystem and wildlife health, this course consists of weekly seminars given by the students and instructors covering current literature and topical overviews as assigned. Repeatable to a maximum of 9 or hrs.			
<b>7895.01</b>	<b>Current Topics in Laboratory Animal Medicine</b>	<b>G V</b>	<b>1</b>
This journal club is directed at laboratory animal residents, graduate students and veterinary medicine students interested in current topics in laboratory animal medicine. Emphasis is placed on the three most recent years of selected journals. Prereq: Grad standing, Second semester of first-year, or second-year standing in the Veterinary Medicine Program. Repeatable to a maximum of 9 or hrs. This course is graded S/U.			
<b>7895.02</b>	<b>Critical Evaluation of the Scientific Literature</b>	<b>G V</b>	<b>1</b>
Introduces students to critical reading of scientific literature related to veterinary medicine and public health. During class sessions, relevant scientific articles will be discussed and critically reviewed using faculty-guided discussions. Prereq: Professional standing in Veterinary Medicine Program. Repeatable to a maximum of 2 or hrs. This course is graded S/U.			
<b>7895.03</b>	<b>Critical Evaluation of the Scientific Literature</b>	<b>G</b>	<b>1</b>
Introduces students to critical reading of scientific literature related to veterinary medicine and public health. During class sessions, relevant scientific articles will be discussed and critically reviewed using faculty-guided discussions. Prereq: Grad or professional standing in Veterinary Medicine Program.			
<b>7896</b>	<b>Veterinary Disaster Response</b>	<b>G V</b>	<b>1</b>
This course is delivered online in an asynchronous format. Students will be expected to complete relevant Federal Emergency Management Agency courses online designed to familiarize students with the Incident Command Structure and animal disaster response. Prereq: Current standing in CVM. This course is graded S/U.			
<b>7998</b>	<b>Culminating Project in Veterinary Public Health</b>	<b>G V</b>	<b>1 - 3</b>
The final project for the veterinary MPH degree that can be a research report, program evaluation, or grant proposal. Prereq: Enrollment in the MPH degree program, and permission of advisor or director of VPH program. Repeatable to a maximum of 6 or hrs or 6 completions. This course is graded S/U.			
<b>8613</b>	<b>Preventing Metabolic Diseases and Records Analysis for Dairy Cattle</b>	<b>G V</b>	<b>3</b>
Feeding management of dairy cattle for the prevention of metabolic diseases and analysis of dairy records for production medicine decisions. Prereq: 8796.06 or AnimSci 3130 or equiv; and third or fourth-year standing in professional program in Veterinary Medicine, Grad standing, or permission of instructor. Not open to students with credit for 796.13, or in same term as AnimSci 6303.			
<b>8700</b>	<b>Molecular Epidemiology of Infectious Diseases</b>	<b>G V</b>	<b>3</b>
Comprehensive overview and detailed discussion on the core molecular approaches that are and can be used in addressing population medicine issues and application of molecular techniques in infectious diseases. Prereq: Not open to students with credit for 700.			
<b>8725</b>	<b>Quantitative Methods Capstone Seminar</b>	<b>G</b>	<b>3</b>
This seminar is a capstone experience. Much of the work will be student-identified and student-led. The course will consist of work in: identification of new or emerging topics or software in quantitative methods: readings and discussion on advanced topics: student-led demonstrations or presentations; and a final paper. Prereq: Basic statistics and study design or epidemiology courses. Cross-listed in ESQREM and HDFS.			
<b>8782</b>	<b>Veterinary Clinical Epidemiology</b>	<b>G</b>	<b>1</b>
Intended for clinical residents and veterinary graduate students with a strong interest in the application of epidemiology concepts to the clinical practice of veterinary medicine. Prereq: DVM or equiv; or permission of instructor. Not open to students with credit for 820.			
<b>8810</b>	<b>Advanced Concepts and Applications in Veterinary Epidemiology</b>	<b>G V</b>	<b>1</b>
In-depth exploration of philosophies that serve as the foundation for the science of epidemiology as it is applied to veterinary medicine. Instructor-guided discussions, assigned readings, and application activities. Prereq: 7721 or VMColl 6646; and VMColl 6510, or PubHEpi 6410 or 6430.			

<b>8830</b>	<b>Modeling Transmission and Control of Infectious Diseases in Humans and Animals</b>	<b>G V</b>	<b>3</b>
Infectious disease modeling is a methodology used to study transmission dynamics in humans and animals and simulate disease control programs. This course provides an introduction to applied infectious disease modeling suitable for advanced undergraduate students, graduate students, health professional students, and health professionals. Prereq: 1st (second semester), 2nd, 3rd, or 4th yr standing in Veterinary Medicine Program, or Grad standing. Cross-listed in PubHEHS 5345.			
<b>8851</b>	<b>Laboratory Animal Medicine I</b>	<b>G</b>	<b>2</b>
A series of courses providing the student with a comprehensive view of lab animal medicine practice. Includes diseases, preventive medicine, effective management of an animal care program, performance of research, and facility design. Prereq: Grad standing in Veterinary Medicine program. Not open to students with credit for 793.01.			
<b>8852</b>	<b>Laboratory Animal Medicine II</b>	<b>G</b>	<b>2</b>
Second in a series of courses to provide students with a comprehensive view of the lab animal medicine practice. Includes diseases, preventive medicine, effective management of an animal care program, performance of research and facility design. Prereq: Grad standing in Veterinary Medicine program. Not open to students with credit for 793.02.			
<b>8853</b>	<b>Laboratory Animal Medicine III</b>	<b>G</b>	<b>2</b>
Third in a series of courses providing the student with a comprehensive view of lab animal medicine practice. Includes diseases, preventive medicine, effective management of an animal care program, performance of research and facility design. Prereq: Grad standing in Veterinary Medicine program. Not open to students with credit for 793.03.			
<b>8854</b>	<b>Laboratory Animal Medicine IV</b>	<b>G</b>	<b>2</b>
Fourth in a series of courses providing students with a comprehensive view of lab animal medicine practice. Includes diseases, preventive medicine, effective management of an animal care program, performance of research and facility design. Prereq: Grad standing in Veterinary Medicine program. Not open to students with credit for 793.04.			
<b>8855</b>	<b>Laboratory Animal Medicine V</b>	<b>G</b>	<b>2</b>
Fifth in a series of courses providing students with a comprehensive view of lab animal medicine practice. Includes diseases, preventive medicine, effective management of an animal care program, performance of research and facility design. Prereq: Grad standing in Veterinary Medicine program. Not open to students with credit for 793.05.			
<b>8856</b>	<b>Laboratory Animal Medicine VI</b>	<b>G</b>	<b>2</b>
Sixth in a series of courses providing students with a comprehensive view of lab animal medicine practice. Includes diseases, preventive medicine, and effective management of an animal care program, performance of research and facility design. Prereq: Grad standing in Veterinary Medicine program. Not open to students with credit for 793.06, 793.07, and 793.08.			
<b>8891.01</b>	<b>Comparative and Veterinary Medicine Graduate Student Seminar</b>	<b>G</b>	<b>1</b>
Research seminars are the foundation of scientific discourse. This course provides graduate students with experience presenting their research and evaluating presentations by others. Prereq: Grad standing. Repeatable to a maximum of 15 or hrs. This course is graded S/U.			
<b>8891.02</b>	<b>Comparative and Veterinary Medicine Graduate Student Seminar</b>	<b>G</b>	<b>1</b>
Research seminars are the foundation of scientific discourse. This course provides graduate students with experience presenting their research and evaluating presentations by others. Repeatable to a maximum of 3 or hrs.			
<b>8999</b>	<b>Research in Veterinary Preventive Medicine</b>	<b>G</b>	<b>1 - 10</b>
Research for dissertation purposes only. Repeatable to a maximum of 60 or hrs or 60 completions. This course is graded S/U.			

## Vision Science

<b>5500</b>	<b>Global Issues in Eye Care</b>	<b>U G</b>	<b>1</b>
Designed for students with diverse backgrounds in healthcare. This course will provide an overview of the common causes of vision impairment and eye disease. Means to eliminate avoidable blindness will also be discussed. Prereq: Not open to students with credit for 781.			
<b>5998</b>	<b>Individual Studies in Vision Research</b>	<b>U G</b>	<b>1 - 8</b>
Individual investigation of a research problem related to vision and/or the eye. Prereq: Permission of instructor. Not open to students enrolled concurrently in 8999. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>6100</b>	<b>General and Histological Anatomy</b>	<b>O</b>	<b>4</b>
Gross and microscopic anatomy of the body with emphasis on head and neck anatomy and organ systems. Prereq: 1st yr standing in Optom.			

<b>6110</b>	<b>General and Visual Neuroanatomy</b>	<b>G O</b>	<b>4</b>
Anatomy of the central and peripheral nervous system with special emphasis on autonomic system and anatomy of the visual system. Prereq: 1st yr standing in Optom. Not open to students with credit for 531 or 608.			
<b>6130</b>	<b>Pathophysiology I</b>	<b>O</b>	<b>5</b>
Provides a comprehensive introduction to pathology, including: inflammation, genetic disease, and neoplasia. Pathophysiology of blood, GI, endocrine, and respiratory systems will be examined in detail. Prereq: 1st yr standing in Optom.			
<b>6140</b>	<b>Pathophysiology II</b>	<b>O</b>	<b>5</b>
The pathophysiology of the nervous system, muscle systems, cardiovascular, renal, and immune systems. Students will integrate information from VisSci 6130. Prereq: 1st yr standing in Optom.			
<b>6160</b>	<b>Biochemistry for Optometry</b>	<b>O</b>	<b>1</b>
This course is designed to help optometry students integrate biochemistry with concepts related to ocular pathology, and therapeutic treatment. Prereq: 1st yr standing in Optom.			
<b>6170</b>	<b>Microbiology for Optometry</b>	<b>O</b>	<b>1</b>
This course is designed to help optometry students integrate microbiology with concepts related to ocular pathology, and therapeutic treatment. Prereq: 1st yr standing in Optom.			
<b>6300</b>	<b>Visual Neurophysiology and Perception</b>	<b>G O</b>	<b>5</b>
Spatial, temporal and chromatic aspects of visual sensation by retina, lateral geniculate, cortex and other brain centers; psychophysics of visual perception; disorders affecting visual pathway. Prereq: 2nd yr standing in Optom.			
<b>6320</b>	<b>Eye Movements and Binocular Vision</b>	<b>G O</b>	<b>5</b>
Characteristics of and clinical evaluation of monocular and binocular eye movements. Prereq: 2nd yr standing in Optom.			
<b>6500</b>	<b>Geometric Optics</b>	<b>G O</b>	<b>5</b>
Vergence, ray tracing and image formation. Refracting and reflecting surfaces, lenses, prisms, model eyes. Magnification, apertures and stops, astigmatism, prismatic effects of lenses, aberrations. Prereq: 1st yr standing in Optom.			
<b>6520</b>	<b>Optics of the Eye</b>	<b>G O</b>	<b>4</b>
Optics of ametropias and their correction, classification and etiology of refractive errors, schematic eyes, retinal image size, optics of clinical instruments, optics of accommodation, aberrations of the eye. Prereq: 1st yr standing in Optom.			
<b>6540</b>	<b>Physical Optics and Photometry</b>	<b>G O</b>	<b>2½</b>
Principles of photometry and colorimetry; light sources; diffraction, polarization, interference, electromagnetic waves, quantum optics, lasers. Prereq: 1st yr standing in Optom.			
<b>6700</b>	<b>Ocular Anatomy</b>	<b>G O</b>	<b>4</b>
Human gross anatomy of the head and neck with special emphasis on the eye and orbit; histology and embryology of the eye and associated structures. Prereq: 1st yr standing in Optom.			
<b>6720</b>	<b>Ocular Physiology</b>	<b>G O</b>	<b>3</b>
Functions and organic processes of the components of the eye and surrounding structures. Prereq: 1st yr standing in Optom.			
<b>7101</b>	<b>Basics of Graduate Work</b>	<b>G</b>	<b>1</b>
Basic information for graduate work, such as citation management, writing abstracts, making presentations. This course is graded S/U.			
<b>7620</b>	<b>Public Health and Environmental Vision</b>	<b>G O</b>	<b>3</b>
Public health/community aspects of providing vision care, health care organizations and policies, vision standards, environmental vision, eye hazards and eye protection. Prereq: 3rd yr standing in Optom.			
<b>7940</b>	<b>Oral Presentation of Scientific Research</b>	<b>G</b>	<b>1 - 3</b>
Student gives a talk based on his/her research or scholarship and improves his/her speaking skills. Prereq: Grad standing in VisSci. Repeatable to a maximum of 10 or hrs or 10 completions. This course is graded S/U.			
<b>7950</b>	<b>Seminar in Vision Science</b>	<b>G</b>	<b>½ - 1</b>
Series of seminars dealing with new developments in the various areas of vision science. Prereq: Grad standing in VisSci. Repeatable to a maximum of 24 or hrs or 24 completions. This course is graded S/U.			
<b>7960</b>	<b>Ethics in Biomedical Research</b>	<b>G</b>	<b>2</b>
Provides a general understanding of the issues surrounding the ethical conduct of science including issues related to research involving human subjects, scientific misconduct, and authorship of scientific papers. Real-life case studies will be used. This course is graded S/U.			

<b>7970</b>	<b>Grantsmanship</b>	<b>G</b>	<b>2</b>
The structure of the National Institutes of Health, the principles of good grantsmanship, and description of the grant review process. Emphasis focused on Mentored Clinical Scientist Development Award (K23) and Research Project Grant (R01). Prereq: Grad standing in VisSci. Repeatable to a maximum of 4 cr hrs.			
<b>7980</b>	<b>Statistics in Clinical Research</b>	<b>G</b>	<b>3</b>
Introduction to the basic concepts and methods of statistical analysis of clinical research data. Statistical software packages will be demonstrated along with interpretation of output. Prereq: Grad standing in VisSci. Repeatable to a maximum of 6 cr hrs or 2 completions.			
<b>7990</b>	<b>Assessing the Literature</b>	<b>G O</b>	<b>½ - 2</b>
In-depth discussion of scientific papers. Prereq: Grad standing in VisSci. Not open to students with credit for 799. Repeatable to a maximum of 20 cr hrs or 8 completions. This course is graded S/U.			
<b>8001</b>	<b>Anatomy and Physiology of the Eye</b>	<b>G</b>	<b>2</b>
Advanced gross anatomy and vegetative physiology and molecular biology of the eye. Prereq: Grad standing in VisSci, or permission of instructor. Not open to students with credit for 8040.			
<b>8002</b>	<b>Ocular Motility and Binocular Vision</b>	<b>G</b>	<b>2</b>
Advanced topics on eye movements, ocular motility, and sensorimotor aspects of visual perception and binocular vision. Prereq: 6300 and 6320, or permission of instructor. Not open to students with credit for 8020.			
<b>8003</b>	<b>Visual Sensory Processes</b>	<b>G</b>	<b>2</b>
Neurophysiology of the retina, the ascending visual pathway, and the brain, and their functional significance. Prereq: Enrollment in Vision Science Grad program, or permission of instructor. Not open to students with credit for 8030.			
<b>8004</b>	<b>Optics of the Eye and Specification of the Visual Stimulus</b>	<b>G</b>	<b>2</b>
Ocular image-forming mechanisms of the eye and optics of ophthalmic instrumentation, specification of light, calibration, and control of intensity and spectral composition of light. Prereq: Grad standing in VisSci program, or permission of instructor.			
<b>8101</b>	<b>Designing Clinical Studies</b>	<b>G</b>	<b>1</b>
Learn to design clinical studies to appropriately answer important clinical research questions.			
<b>8103</b>	<b>Circadian Rhythms and the Eye</b>	<b>G</b>	<b>2</b>
Advanced topics in chronobiology with emphasis on the role of the eye in synchronizing circadian rhythms to the external environment. Prereq: 6300, or permission of instructor.			
<b>8104</b>	<b>High Resolution Imaging of the Eye</b>	<b>G</b>	<b>2</b>
Optical imaging of the human retina now allows visualization of single cells in vivo. This course will describe how this is achieved and detail the application to retinal and optic nerve diseases.			
<b>8105</b>	<b>Advanced Ocular Motility</b>	<b>G</b>	<b>1</b>
The basics of experimental design in ocular motility studies including equipment choices, properties of eye movements, and data analyses. Prereq: 8002 or 8020.			
<b>8106</b>	<b>Refractive Error Development</b>	<b>G</b>	<b>2</b>
Students learn about ocular changes that lead to the development of refractive error in children. Prereq: Grad Standing in Vision Science or related discipline.			
<b>8107</b>	<b>Basic Science Experimental Design</b>	<b>G</b>	<b>2</b>
Teaches various aspects of designing basic science experiments, from choosing controls to data analysis.			
<b>8108</b>	<b>Introduction to Matlab</b>	<b>G</b>	<b>2</b>
An introduction to Matlab and its applications in research. Prereq: Grad standing in VisSci or related discipline.			
<b>8109</b>	<b>Psychophysics</b>	<b>G</b>	<b>2</b>
This course will cover visual psychophysical techniques commonly used in clinical research. Prereq: Grad standing in VisSci.			
<b>8111</b>	<b>Advanced Topics in Low Vision</b>	<b>G</b>	<b>1</b>
Advanced topics in models for rehabilitation, patient-reported outcomes measurement, and psychophysical testing of people with permanent vision impairment. Prereq: Grad standing in VisSci.			
<b>8112</b>	<b>Advanced Binocular Vision and Visual Plasticity</b>	<b>G</b>	<b>1</b>
Structural, molecular, and functional considerations of mechanisms underlying visual plasticity. Prereq: Grad standing in VisSci or related discipline.			
<b>8113</b>	<b>Clinical Trials in Binocular Vision</b>	<b>G</b>	<b>½</b>
Review of recent clinical trials in binocular vision, such as amblyopia and intermittent exotropia. Prereq: Grad standing in VisSci.			

## 462 Vision Science

<b>8114</b>	<b>Advanced Contact Lens Topics</b>	<b>G</b>	<b>2</b>
Advanced topics related to contact lens materials and care, lens modalities, advanced fitting techniques, adverse events and regulations. Prereq: Grad standing in VisSci.			
<b>8115</b>	<b>Effective Scientific Presentation Skills</b>	<b>G</b>	<b>2</b>
Develop skills to communicate scientific findings using a variety of presentation formats. Prereq: Grad standing in VisSci or related discipline.			
<b>8116</b>	<b>Scientific Writing</b>	<b>G</b>	<b>2</b>
Developing effective scientific writing skills. Prereq: Enrollment in VisSci PhD program, or permission of instructor.			
<b>8999</b>	<b>Research for Dissertation or Thesis</b>	<b>G</b>	<b>1 - 15</b>
Research on thesis or dissertation project only. Prereq: Grad standing in VisSci. Repeatable to a maximum of 90 or hrs or 15 completions. This course is graded S/U.			

## Welding Engineering

<b>2001</b>	<b>Introduction to Welding Engineering</b>	<b>U</b>	<b>3</b>
Study of the principles of welding engineering, including processes, design, weldability of materials, codes and standards, and quality assurance. Prereq: MatScEn 2010, Physics 1251, and WeldEng-BS student; or permission of instructor.			
<b>2601</b>	<b>Introductory Arc Welding Laboratory</b>	<b>U</b>	<b>1</b>
Basic skills required for manual and semiautomatic arc welding processes. Prereq: Chem 1250 or 1210; and Math 1151 or 1161; and Physics 1250 or 1260; and enrollment as WeldEng-BS major or pre-major student; or permission of instructor.			
<b>3193.01</b>	<b>Individual Studies in Welding Engineering</b>	<b>U</b>	<b>½ - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			
<b>3193.02</b>	<b>Individual Studies in Welding Engineering</b>	<b>U</b>	<b>½ - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required. Prereq: Permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.			
<b>4001</b>	<b>Physical Principles in Welding Processes I</b>	<b>U</b>	<b>4</b>
Study of the application of physical principles in engineering of arc welding processes and equipment. Prereq: 2001 or 3001, and enrollment in the WeldEng-BS major. Prereq or concur: ECE 2300; or permission of instructor.			
<b>4002</b>	<b>Physical Principles in Welding Processes II</b>	<b>U</b>	<b>4</b>
Study of the application of physical principles in engineering of non-arc welding processes and equipment. Prereq: 2001 or 3001, and enrollment in the WeldEng-BS major or MatScEn-BS major; or permission of instructor.			
<b>4012</b>	<b>Resistance Welding Processes</b>	<b>U</b>	<b>3</b>
Addresses the fundamentals, theory, and application of Resistance Welding processes, with emphasis on processes, equipment, materials, and quality control. Prereq: 4002, and enrollment as WeldEng-BS major; or permission of instructor. Not open to students with credit for 602 or 702.			
<b>4021</b>	<b>Solid-State Welding/Joining</b>	<b>U</b>	<b>3</b>
The welding and joining of materials in the solid state with emphasis on physical processes and metallurgical principles. Prereq: 4002, and enrollment in the WeldEng-BS or MatScEn-BS major; or permission of instructor.			
<b>4023</b>	<b>Brazing and Soldering</b>	<b>U</b>	<b>3</b>
Brazing and soldering processes with emphasis on physical and metallurgical principles, materials, design and application considerations. Prereq: 2001 or 3001 and MatScEn 2251, and enrollment in the WeldEng-BS or MatScEn-BS major; or permission of instructor.			
<b>4024</b>	<b>High Energy Density Welding Processes</b>	<b>U</b>	<b>2</b>
Theory and practice of laser, electron beam, and other high energy density welding processes. Prereq: 4001, and enrollment as a WeldEng-BS or MatScEn-BS major; or permission of instructor. Not open to students with credit for 704.			
<b>4101</b>	<b>Welding Metallurgy I</b>	<b>U</b>	<b>4</b>
Application of physical metallurgy principles to nonequilibrium thermo-mechanical conditions associated with welding in structural alloys and focus on carbon steels. Includes welding metallurgy laboratories. Prereq: MatScEn 2251 and 3141, and enrollment as a WeldEng-BS or MatScEn-BS major. Not open to students with credit for 4611.			

<b>4102</b>	<b>Welding Metallurgy II</b>	<b>U</b>	<b>4</b>
Addresses the welding metallurgy and weldability principles associated with stainless steels, nickel-base, aluminum-base, and titanium-base alloys and other nonferrous alloys. Includes laboratories. Prereq: 4101, and enrollment as WeldEng-BS major; or permission of instructor. Not open to students with credit for 4612.			
<b>4112</b>	<b>Weldability</b>	<b>U</b>	<b>3</b>
Teaches the basic concepts of weldability and focuses on failure mechanisms in welded construction. Failure phenomena that occur during fabrication, repair, and during service are discussed. Prereq: 4101, and WeldEng-BS major; or permission of instructor. Not open to students with credit for 714 or 715.			
<b>4115</b>	<b>Computational Modeling of Additive Manufacturing and Welding</b>	<b>U</b>	<b>3</b>
Theory of temperature, stress, deformation and phase transformation for additive manufacturing and welding, as well as application of industry-standard simulation codes. Prereq: 4201, or permission of instructor.			
<b>4121</b>	<b>Computational Thermodynamics and Kinetics</b>	<b>U</b>	<b>2</b>
Comprehensive background on computational thermodynamics and kinetics. Includes focus on CALPHAD (Calculation of Phase Diagram) methodology. Prereq: MatScEn 2251 and 3141 or equivalents; or Grad standing in MatScEn or WeldEng; or permission of instructor. Not open to students with credit for 7121. Cross-listed in MatScEn 5321.			
<b>4189</b>	<b>Industrial Experience</b>	<b>U</b>	<b>1</b>
Experience in an industrial organization and the submitting of an acceptable report on the work done. Prereq: 4002 and 4202, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 489.			
<b>4193.01</b>	<b>Individual Studies in Welding Engineering</b>	<b>U</b>	<b>½ - 6</b>
Non-thesis research investigations under the directions of instructors. Comprehensive report required. Prereq: Enrollment as a WeldEng-BS major or MatScEn-BS major; and permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions. This course is graded S/U.			
<b>4193.02</b>	<b>Individual Studies in Welding Engineering</b>	<b>U</b>	<b>½ - 6</b>
Non-thesis research investigations under the directions of instructors. Comprehensive report required. Prereq: Enrollment as a WeldEng-BS major or MatScEn-BS major; and permission of instructor. Repeatable to a maximum of 12 or hrs or 12 completions.			
<b>4194</b>	<b>Group Studies in Welding Engineering</b>	<b>U</b>	<b>1 - 4</b>
Special topics in Welding Engineering. Topic, credit hours, and instructor will be announced in the preceding semester. Repeatable to a maximum of 12 or hrs or 6 completions.			
<b>4201</b>	<b>Engineering Analysis for Design and Simulation</b>	<b>U</b>	<b>4</b>
Fundamentals of engineering analysis of heat flow, thermal and residual stresses, and fracture and fatigue with applications to design and simulation in welding and manufacturing. Prereq: 2001 or 3001; and Math 2177, or 2255, or 2415, or 2174; and MechEng 2040 or 2020; and Engr 1221 or 1281H; and enrollment in WeldEng major; or permission of instructor.			
<b>4202</b>	<b>Welding Design</b>	<b>U</b>	<b>3</b>
Fundamentals of design and application of codes and standards for welded structures. Prereq: 4201, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 621 or 641.			
<b>4240</b>	<b>Fitness-for-Service of Welded Structures</b>	<b>U</b>	<b>2</b>
The interrelationship of design, fabrication, nondestructive evaluation, fracture mechanics, and reliability concepts in establishing the overall fitness-for-purpose of welded structures. Prereq: 4201, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 740.			
<b>4301</b>	<b>Nondestructive Evaluation</b>	<b>U</b>	<b>3</b>
Main concepts of Nondestructive Evaluation of materials as applied to inspections of joints and structures; principles of conventional methods and their capabilities and limitations. Prereq: 4201, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 631.			
<b>4406</b>	<b>Welding of Plastics and Composites</b>	<b>U</b>	<b>3</b>
Theory and practice in welding of plastics and polymeric composites, including theory and analysis of welding processes, part and joint design, and process selection. Prereq: 4201, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 706.			
<b>4407</b>	<b>Adhesive Bonding and Mechanical Joining of Plastics</b>	<b>U</b>	<b>2</b>
Fundamentals of adhesive bonding science and technology and methods for mechanical joining of plastics including fasteners, snap-fits, press-fits, swaging, and staking. Prereq: 4201, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 707.			



## Welding Engineering 463

<b>4595</b>	<b>Topics in Welding Engineering</b>	<b>U</b>	<b>1</b>
Theory and application of novel and hybrid welding processes. Prereq: 2001, or permission of instructor.			
<b>4602</b>	<b>Welding Procedure Development and Qualification</b>	<b>U</b>	<b>3</b>
National and international welding codes. Approaches to development of welding procedures and qualification of welding procedures and personnel. Prereq: 4002, and enrollment in the WeldEng-BS major; or permission of instructor.			
<b>4606</b>	<b>Welding Robot Programming and Operations</b>	<b>U</b>	<b>1</b>
Laboratory experience programming and operation of robotic welding systems. Prereq: 2001 or 3001, and enrollment in the WeldEng-BS major; or permission of instructor.			
<b>4901</b>	<b>Capstone Welding Design I</b>	<b>U</b>	<b>2</b>
Group design projects building on all aspects of Welding Engineering. Prereq: Sr standing in WeldEng-BS major, or permission of instructor. Not open to students with credit for 690 and 691.			
<b>4902</b>	<b>Capstone Welding Design II</b>	<b>U</b>	<b>3</b>
Group design projects building on all aspects of Welding Engineering. Prereq: 4901, and enrollment as a WeldEng-BS major; or permission of instructor. Not open to students with credit for 692.			
<b>4998</b>	<b>Undergraduate Research in Welding Engineering</b>	<b>U</b>	<b>1 - 3</b>
Opportunity for supervised undergraduate research in Welding Engineering. Prereq: Enrollment as a WeldEng-BS major, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>4999</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>½ - 3</b>
Supervised undergraduate research on topics in Welding Engineering (non-honors version). Prereq: Enrollment in WeldEng-BS major, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>4999H</b>	<b>Undergraduate Honors Research in Welding Engineering</b>	<b>U</b>	<b>1 - 3</b>
Honor program students are offered the opportunity for supervised undergraduate research in Welding Engineering. Student presentation and thesis writing included. Prereq: Honors standing, enrollment as a WeldEng-BS major, and permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>5193.01</b>	<b>Individual Studies in Welding Engineering</b>	<b>U G</b>	<b>0 - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under direction of instructor(s). Comprehensive report required. Prereq: Enrollment in MatSEng-BS or WeldEng-BS major, or Grad standing in Engr, or permission of instructor. This course is graded S/U.			
<b>5193.02</b>	<b>Individual Study in Welding Engineering</b>	<b>U G</b>	<b>½ - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under direction of instructor(s). Comprehensive report required. Prereq: Enrollment in MatSEng-BS or WeldEng-BS major; or Grad standing in Engr; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions.			
<b>6193.01</b>	<b>Individual Studies in Welding Engineering</b>	<b>G</b>	<b>½ - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under direction of instructor(s). Comprehensive report required. Prereq: Grad standing in Engr, Math, Physics, or Chem; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions. This course is graded S/U.			
<b>6193.02</b>	<b>Individual Studies in Welding Engineering</b>	<b>G</b>	<b>½ - 6</b>
Investigations in areas of advanced non-thesis research. Library and/or research investigations under direction of instructor(s). Comprehensive report required. Prereq: Grad standing in Engr, Math, Physics, or Chem; or permission of instructor. Repeatable to a maximum of 12 cr hrs or 10 completions.			
<b>6194</b>	<b>Group Studies in Welding Engineering</b>	<b>G</b>	<b>1 - 4</b>
Special topics in Welding Engineering. Topic, credit hours, and instructor will be announced in the preceding semester. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 8 completions.			
<b>6999</b>	<b>Graduate Research in Welding Engineering</b>	<b>G</b>	<b>½ - 18</b>
Research for thesis purposes only. Repeatable to a maximum of 45 cr hrs or 15 completions. This course is graded S/U.			
<b>7001</b>	<b>Physical Principles in Welding Processes I</b>	<b>G</b>	<b>3</b>
Study of the application of physical principles in engineering of arc welding processes and equipment. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4001 (500) or 600.			
<b>7002</b>	<b>Physical Principles of Welding Processes II</b>	<b>G</b>	<b>3</b>
Study of the application of physical principles in engineering of non-arc welding processes and equipment. Prereq: 7001 or 4001, and Grad standing; or permission of instructor. Not open to students with credit for 4002 (600) or 601.			

<b>7012</b>	<b>Resistance Welding Processes</b>	<b>G</b>	<b>3</b>
Addresses the fundamentals, theory, and application of Resistance Welding processes, with emphasis on processes, equipment, materials, and quality control. Prereq: 7002 or 4002, and Grad standing; or permission of instructor. Not open to students with credit for 4012 (602) or 702.			
<b>7021</b>	<b>Solid-State Welding/Joining</b>	<b>G</b>	<b>3</b>
The welding and joining of materials in the solid state with emphasis on physical processes and metallurgical principles. Prereq: 7001, 7002, 7101, 7102, 4001, 4002, 4101, or 4102, and Grad standing; or permission of instructor. Not open to students with credit for 4021 (701).			
<b>7023</b>	<b>Brazing and Soldering</b>	<b>G</b>	<b>3</b>
Brazing and soldering processes with emphasis on physical and metallurgical principles, materials, design and application considerations. Prereq: 7101 or 4101, and 7102 or 4102, and Grad standing; or permission of instructor. Not open to students with credit for 4023 (703).			
<b>7024</b>	<b>High Energy Density Welding Processes</b>	<b>G</b>	<b>2</b>
Theory and practice of laser, electron beam, and other high energy density welding processes. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4024.			
<b>7101</b>	<b>Welding Metallurgy I</b>	<b>G</b>	<b>3</b>
Application of physical metallurgy principles to nonequilibrium thermo-mechanical conditions associated with welding in structural alloys and focus on carbon steels. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4101 (610) or 611.			
<b>7102</b>	<b>Welding Metallurgy II</b>	<b>G</b>	<b>3</b>
Addresses the welding metallurgy and weldability principles associated with stainless steels, and nickel-base, aluminum-base, and titanium-base alloys. Prereq: 7101 or 4101, and Grad standing; or permission of instructor. Not open to students with max credit for 4102 (612).			
<b>7112</b>	<b>Weldability</b>	<b>G</b>	<b>3</b>
Teaches the basic concepts of weldability and focuses on failure mechanisms in welded construction. Failure phenomena that occur during fabrication, repair, and during service are discussed. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4112 (714) or 715.			
<b>7115</b>	<b>Computational Modeling of Additive Manufacturing and Welding (Grad)</b>	<b>G</b>	<b>3</b>
Graduate-level instruction on the theory of temperature, stress, deformation and phase transformation for additive manufacturing and welding, as well as application of industry-standard simulation codes. Prereq: Grad standing in Engineering, Mathematics, Physics, or Chemistry; or permission of instructor. Not open to students with credit for 4115.			
<b>7121</b>	<b>Computational Thermodynamics and Kinetics</b>	<b>G</b>	<b>2</b>
Comprehensive background on computational thermodynamics and kinetics. Includes focus on CALPHAD (Calculation of Phase Diagram) methodology. Prereq: MatScEn 2251 and 3151, or equiv, or Grad standing in MatScEn or WeldEng, or permission of instructor. Not open to students with credit for 4121. Cross-listed in MatScEn 5321.			
<b>7123</b>	<b>Advanced Metallurgy for Brazing and Soldering</b>	<b>G</b>	<b>3</b>
Graduate level physical-chemical concepts of brazability and solderability of metals, ceramics, and glasses and focuses on wetting by liquid filler metals, interfacial reactions, phase compositions of joint metal, hetero-diffusion, liquid embrittlement, as well as strength and reliability of brazed and soldered joints manufactured in aerospace, electronic, optical, mining, and other industries. Prereq: 4023 or 7023, and Grad standing; or permission of instructor.			
<b>7193.01</b>	<b>Individual Studies in Welding Engineering</b>	<b>G</b>	<b>½ - 6</b>
Non-thesis research investigations under the directions of instructors. Comprehensive report required. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>7193.02</b>	<b>Individual Studies in Welding Engineering</b>	<b>G</b>	<b>½ - 6</b>
Non-thesis research investigations under the directions of instructors. Comprehensive report required. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>7194</b>	<b>Group Studies in Welding Engineering</b>	<b>G</b>	<b>1 - 4</b>
Special topics in welding engineering; topic, credit hours, and instructor will be announced in the previous semester. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 8 completions.			
<b>7201</b>	<b>Engineering Analysis for Design and Simulation</b>	<b>G</b>	<b>4</b>
Fundamentals of engineering analysis of heat flow, thermal and residual stresses, and fracture and fatigue with applications to design and simulation in welding and manufacturing. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4201 (620) or 621.			

## 464 Welding Engineering

<b>7202</b>	<b>Welding Design</b>	<b>G</b>	<b>3</b>
Fundamentals of design and application of codes and standards for welded structures. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4202 (641) or 621.			
<b>7240</b>	<b>Fitness-for-Service of Welded Structures</b>	<b>G</b>	<b>2</b>
The interrelationship of design, fabrication, nondestructive evaluation, fracture mechanics, and reliability concepts in establishing the overall fitness-for-purpose of welded structures. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4240 (740).			
<b>7301</b>	<b>Nondestructive Evaluation</b>	<b>G</b>	<b>3</b>
Main concepts of Nondestructive Evaluation of materials as apply to inspections of joints and structures; principles of conventional methods, their capabilities and limitations. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4301 (631).			
<b>7406</b>	<b>Welding of Plastics and Composites</b>	<b>G</b>	<b>3</b>
Theory and practice in welding of plastics and polymeric composites, including theory and analysis of welding processes, part and joint design, and process selection. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4406 (706).			
<b>7407</b>	<b>Adhesive Bonding and Mechanical Joining of Plastics</b>	<b>G</b>	<b>2</b>
Fundamentals of adhesive bonding science and technology and methods for mechanical joining of plastics including fasteners, snap-fits, press-fits, swaging, and staking. Prereq: Grad standing, or permission of instructor. Not open to students with credit for 4407 (707).			
<b>7611</b>	<b>Welding Metallurgy Laboratory I</b>	<b>G</b>	<b>1</b>
Fundamental understanding of microstructure evolution in alloys and steels during heat treatment, as well as welding through various characterization techniques. Prereq: Grad standing. Concur: 4101 or 7101, or permission of instructor. Not open to students with credit for 4611 (661).			
<b>7612</b>	<b>Welding Metallurgy Laboratory II</b>	<b>G</b>	<b>1</b>
Offered in conjunction with 7102 - Welding Metallurgy II. The course demonstrates microstructure evolution and weldability principles in stainless steels and nonferrous alloys. Prereq: 7102, and Grad standing; or permission of instructor. Not open to students with credit for 4612 (662).			
<b>7895</b>	<b>Graduate Seminar</b>	<b>G</b>	<b>1</b>
Presentations and discussion by graduate students and involved outside speakers on thesis research and current problems in Welding Engineering. Prereq: Grad standing in WeldEng. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.			
<b>8193.01</b>	<b>Individual Studies in Welding Engineering</b>	<b>G</b>	<b>½ - 6</b>
Non-thesis research investigations under the directions of instructors. Comprehensive report required. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions. This course is graded S/U.			
<b>8193.02</b>	<b>Individual Studies in Welding Engineering</b>	<b>G</b>	<b>½ - 6</b>
Non-thesis research investigations under the directions of instructors. Comprehensive report required. Prereq: Grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs or 12 completions.			
<b>8194</b>	<b>Group Studies in Welding Engineering</b>	<b>G</b>	<b>1 - 4</b>
Special topics in Welding Engineering. Topic, credit hours, and instructor will be announced in the preceding semester. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs or 8 completions.			
<b>8999</b>	<b>Graduate Research in Welding Engineering</b>	<b>G</b>	<b>½ - 18</b>
Research for dissertation purposes only. Repeatable to a maximum of 60 cr hrs or 20 completions. This course is graded S/U.			

### Women's, Gender, and Sexuality Studies

<b>1110</b>	<b>Gender, Sex and Power</b>	<b>U</b>	<b>3</b>
Introduces students to the study of gender, sex, and power. We will draw on a variety of literatures to analyze gender, race, sexuality, and other identities. We will place the study of US women in broader transnational contexts. GE cultures and ideas and soc sci indivs and groups and diversity soc div in the US course.			
<b>1110H</b>	<b>Gender, Sex and Power</b>	<b>U</b>	<b>3</b>
Introduces students to the study of gender, sex, and power. We will draw on a variety of literature to analyze gender, race, sexuality, and other identities. We will place the study of US women in broader transnational context. Prereq: Honors standing, or permission of instructor. Not open to students with credit for 110, 110H, WomStd 101, 101H, 110, or 110H. GE cultures and ideas and soc sci indivs and groups and diversity soc div in the US course.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 3</b>
Special studies not otherwise offered. Repeatable to a maximum of 6 cr hrs or 2 completions.			

<b>2215</b>	<b>Reading Women Writers</b>	<b>U</b>	<b>3</b>
Study of women writers' strategies for articulating experiences and using literature as a lens for social reality and catalyst for social and political change. Prereq: Not open to students with credit for 215. GE lit course.			
<b>2230</b>	<b>Gender, Sexuality and Race in Popular Culture</b>	<b>U</b>	<b>3</b>
Explores how popular culture generates and articulates our understandings of gender and sexuality and their intersections with race and class. Prereq: Not open to students with credit for 230. GE VPA course.			
<b>2260</b>	<b>Queer Ecologies: Gender, Sexuality, &amp; the Environment</b>	<b>U</b>	<b>3</b>
Queer ecologies seek to disrupt the gendered and heterosexual assumptions embedded in how we understand the environment, nature, and bodies (human and animal). From animal studies, queer and feminist social movements for environmental justice, trans*natures, and sexual politics, Queer Ecologies will articulate a commitment to new thinking about the challenges of planetary and climate change. GE cultures and ideas and soc sci human, nat, and econ resources course.			
<b>2282</b>	<b>Introduction to Queer Studies</b>	<b>U</b>	<b>3</b>
Introduces and problematizes foundational concepts of the interdisciplinary field of queer studies, highlighting the intersections of sexuality with race, class, and nationality. Prereq: Not open to students with credit for English 2282. GE cultures and ideas and diversity soc div in the US course. Cross-listed in English.			
<b>2296H</b>	<b>Topics in Women's, Gender and Sexuality Studies</b>	<b>U</b>	<b>3</b>
In-depth study in women's, gender and sexuality studies focusing on current issues in feminist analysis. Prereq: Honors standing.			
<b>2300</b>	<b>Approaches to Feminist Inquiry</b>	<b>U</b>	<b>3</b>
Introduction to principles of feminist analysis as they apply to a range of contemporary issues and institutions. Prereq: Not open to students with credit for 300.			
<b>2305</b>	<b>A World of Genders and Sexualities</b>	<b>U</b>	<b>3</b>
Investigates gender and sexuality in transnational and cross-cultural perspective.			
<b>2306</b>	<b>Girlhood</b>	<b>U</b>	<b>3</b>
An examination of the contemporary contexts and social differences of female adolescence, including race, ethnicity, location, sexuality, class.			
<b>2317</b>	<b>Gender at the Movies: Hollywood and Beyond</b>	<b>U</b>	<b>3</b>
A study of the representation of gender in relationship to race, sexuality, and class in cinema. Topics may include stardom, genre, narrative, national cinemas, women and minority filmmakers, and film history. Prereq: Not open to students with credit for 3317. GE VPA course.			
<b>2325</b>	<b>Health and Inequality</b>	<b>U</b>	<b>3</b>
An interdisciplinary inquiry into the relationships between health and gender under political, biological, economic, spiritual, cultural and/or socially constructed influences.			
<b>2326</b>	<b>Feminist Perspectives on Addiction</b>	<b>U</b>	<b>3</b>
An interdisciplinary feminist focus on addictive consequences of sex-role socialization, substance abuse, addiction in intimate relationships, and eating disorders; consequences of addiction among women.			
<b>2326S</b>	<b>Feminist Perspectives on Addiction, Service Learning</b>	<b>U</b>	<b>3</b>
Combines the study of feminist scholarship on addiction and volunteer work at a local organization that provides services to persons with substance-abuse issues. Students will use the course material and tools of analysis to think and write critically about their volunteer experiences. It is strongly suggested that students take WGSST 1110 or another WGSST course prior to enrolling. Prereq: Not open to students with credit for 2326.			
<b>2327</b>	<b>Embodying Gender, Race &amp; Ethnicity</b>	<b>U</b>	<b>3</b>
This course examines through a feminist lens how the body is situated, lived, interpreted, and constructed in culture. The course focuses on intersectionality as a key issue in understanding how the body's gender, race, sexuality, health, physical abilities, and class/economic situation are interconnected. GE cultures and ideas course.			
<b>2340</b>	<b>Latina Experience in the U.S.</b>	<b>U</b>	<b>3</b>
Introduces the important and far reaching issues of Latinas today, recognizing the contributions of these women to U.S. history, the women's movement and feminism. Prereq: Not open to students with credit for 340.			
<b>2350</b>	<b>Feminist Perspectives on Women and Violence</b>	<b>U</b>	<b>3</b>
Uses an interdisciplinary feminist approach to analyze selected issues of interpersonal and institutionalized violence in which women are victims or perpetrators. Prereq: Not open to students with credit for 350.			
<b>2367.01</b>	<b>U.S. Women Writers: Text and Context</b>	<b>U</b>	<b>3</b>
Writing about and analysis of female experiences as represented in U.S. literature by women; emphasis on interdisciplinary relationships between literature and socio-political history. Prereq: English 1110 (110), and Soph standing. Not open to students with credit for 367.01. GE writing and comm: level 2 and lit and diversity soc div in the US course.			

## Women's, Gender, and Sexuality Studies 465

**2367.02 U.S. Latina Writers: Text and Context** U 3

Writing and analysis of U.S. Latina experiences, with emphasis on interdisciplinary relationships between literature and U.S. Latina socio-political history.  
Prereq: English 1110 (110), and Soph standing. Not open to students with credit for 367.02.  
GE writing and comm: level 2 and lit and diversity soc div in the US course.

**2367.03 U.S. Lesbian Writers: Text and Context** U 3

Writing and analysis of U.S. lesbian experiences, with emphasis on interdisciplinary relationships between literature and U.S. lesbian socio-political history.  
Prereq: English 1110 (110), and Soph standing. Not open to students with credit for 367.03.  
GE writing and comm: level 2 and lit and diversity soc div in the US course.

**2367.04 Black Women Writers: Text and Context** U 3

Writing and analysis of black women's literary representations of issues in United States social history.  
Prereq: English 1110 (110), and Soph standing. Not open to students with credit for 367.04 or AfAmASt 2367.04 (367.04). GE writing and comm: level 2 and lit and diversity soc div in the US course. Cross-listed in AfAmASt.

**2550 History of Feminist Thought** U 3

An introduction to and analysis of major texts of feminist theory as it has developed and changed since the Enlightenment.  
Prereq: Not open to students with credit for 550.

**2702 Modern Arabic Literature in Translation** U 3

Reading and analysis of representative works of the 19th and 20th centuries by contemporary women authors.  
Prereq: English 1110 (110). Not open to students with credit for 2702H (372H), 372, Arabic 2702 (372), or 2702H (372H). GE lit and diversity global studies course. Cross-listed in Arabic.

**2702H Modern Arabic Literature in Translation** U 3

Reading and analysis of representative works of the 19th and 20th centuries by contemporary women authors. Taught in English.  
Prereq: Honors standing, and English 1110 (110); or permission of instructor. Not open to students with credit for 2702 (372), 372H, Arabic 2702 (372), or 2702H (372H). GE lit and diversity global studies course. Cross-listed in Arabic.

**2750 Natives and Newcomers: Immigration and Migration in U.S. History** U 3

General survey of (im)migration history in the U.S. from precolonial times to the present. Topics include cultural contact, economic relations, citizenship, politics, family, and sexuality.  
Prereq: English 1110.xx, or permission of instructor. Not open to students with credit for 2750H, History 2750, 2750H, or 2750E. GE historical study and diversity soc div in the US course. Cross-listed in History.

**2750H Natives and Newcomers: U.S. Immigration and Migration** U 3

General survey of (im)migration history in the U.S. from precolonial times to the present. Topics include cultural contact, economic relations, citizenship, politics, family and sexuality.  
Prereq: Honors standing, and English 1110; or permission of instructor. Not open to students with credit for 322H, History 2750 (322), 322H, or 2750E. GE historical study and diversity soc div in the US course. Cross-listed in History.

**3100 Islamic Activisms: Gender, Sexuality & Politics** U 3

This course addresses the complexity of contemporary feminisms in the Middle East by analyzing the political goals, strategies, and activism of women's movements in this region. Through case studies in Afghanistan, Algeria, Egypt, and Iran, we will explore how women's movements in the Middle East position themselves in relation to Islamist, (neo)liberal, nationalist, and socialist ideologies. Prior credit for 1110 strongly encouraged.

**3101 Food & Gender** U 3

If you are what you eat, then food is a means for understanding gender, sexuality, culture, society, race, and socioeconomic class. This class explores feminist studies of food. By thinking through food, we explore such topics as vegetarianism, diets, pleasure, farming, hunger, fat studies, boycotts, eating disorders, waste, and culinary heritage. This class is literally food for thought.

**3191 Internship in Women's, Gender and Sexuality Studies** U 1 - 3

Supervised practical experience at a departmental approved internship site related to the student's major or minor in Women's, Gender and Sexuality Studies.  
Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

**3200 Breaking the Law: An Introduction to Gender Justice** U 3

Sexual harassment. Revenge porn. Getting married. Becoming a parent. Who we are and how society responds to us in legal contexts can have profound impacts on our lives. This course introduces you to the ways in the law grapples with gender, sexuality and race and the ways that human diversity informs claims to justice.

**3280 Introduction to Trans Studies** U 3

Examination of intersecting state, social, and cultural institutions that shape transgender struggles through gender identity, gender, race, indigeneity, migration, and socio-economic class. Emphasizes trans of color, queer of color, indigenous, and women of color feminist approaches that engage histories of race and white supremacy, settler colonialism, and empire.

**3300.01S Feminist Perspectives of Incarceration in the US** U 3

This course explains the growth in the US prison system and its punitive shift from feminist, anti-racist, and queer perspectives. Students will learn about the historical and ongoing disproportionate incarceration of the poor, people of color, and gender non-conforming people. This service-learning course is an Inside-Out Prison Exchange Program class to be offered in Spring semesters.  
Prereq: Permission of Instructor.

**3302 Gender, War & Peacebuilding** U 3

Feminist scholars have demonstrated the multiple and complex ways that gender norms are implicit to the processes of war, militarism, and peace and have examined gender as a system of power that is both instrumental in, and constituted by, militarism and armed conflict. This course explores war and peace as gendered phenomena reliant on socially constructed norms. Students are strongly encouraged to have taken WGSSt 1110 prior to this course.

**3306 Gender, Media, and New Technologies** U 3

Explores how race, gender, class, sexuality, and physical ability discourses of the real world are or aren't redefined in the virtual world.

**3310 Science Fiction: East vs. West** U 3

Slavic, American, and British sci-fi on page and screen as reflection of major cultural concerns: progress, utopia, human perfectibility, limits of science and knowledge, gender, identity. Taught in English.  
Prereq: Not open to students with credit for Slavic 3310 or 3320. GE VPA and diversity global studies course. Cross-listed in Slavic.

**3320 Topics in Women's, Gender and Sexuality Studies** U 3

Provides in-depth analyses of specific topics in the areas of difference and diversity, culture and representation, and political contexts and social change.  
Repeatable to a maximum of 9 cr hrs.

**3370 Sexualities and Citizenship** U 3

A survey of cultural, social, and political issues related to historical and contemporary lesbian experience in the United States.  
GE diversity soc div in the US course.

**3385 Women in Political Leadership Internship** U 3

Offers students opportunities to learn leadership and policy making skills by working with Ohio women lawmakers.  
Prereq: Not open to students with credit for 385.

**3505 Transnational Feminisms** U 3

Examines how feminist activists and scholars understand and interrogate contemporary globalization.

**3530 Women, Environment and Development** U 3

Interdisciplinary study of women's roles as environmental stewards and in resource-based development in global context. Attention given to gender differences in environmental and rural practices.  
Prereq: Not open to students with credit for ENR 3530. Cross-listed in ENR.

**3575 Feminist Methodology** U 3

This course will introduce students to thinking critically and analytically about feminist approaches to knowledge production, examining identities and subjectivities, and critical excavations of lived experiences and consciousness. We will focus on how race, class, gender, sexuality, ability, religion, ethnicity, and geopolitical location affect feminist research and scholarship. Completion of 1110 strongly recommended prior to enrollment in this course.

**4189.01S Reproductive Rights and Justice** U 3

This class takes an interdisciplinary feminist approach to investigating the history and contemporary politics of reproduction. It focuses on both US and global contexts and links the academic investigation to service learning in the Columbus community. Students will work with organizations who seek to further the goals of reproductive justice in policy, activist, legal, and healthcare contexts.  
Prereq: 1110.

**4194 Group Studies** U 3

Special studies not otherwise offered; topic varies; students should consult department course listing.  
Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**4375 Women and Visual Culture** U 3

Analysis of visual images of women in historical, racial, and class contexts.  
Prereq: Not open to students with credit for 375.

**4401 Asian American Women: Race, Sex, and Representations** U 3

Examines the experiences and cultural representations of Asian American women for insight into race, gender, sexuality, and citizenship in U.S. and Asian societies.  
GE historical study and diversity soc div in the US course. Cross-listed in History 3612.

**4402 Black Women: Representations, Politics, and Power** U 3

Examines the ways in which black women and black womanhood are constructed and represented across cultural, social, and political contexts in the U.S., specifically how they are making meaning of their lives.

## 466 Women's, Gender, and Sexuality Studies

**4403 Gender and Leadership** U 3

Focuses on how gender can influence who becomes a leader, the styles of leadership they employ, and how effective leaders can be.

**4404 Regulating Bodies: Global Sexual Economies** U 3

Regulation of women's bodies and sexual practices in national and international contexts. Topics include: state regulation of reproduction, population control, and migration of sexualized labor.

**4405 Race and Sexuality** U 3

Placing the concepts of 'race' and 'sexuality' in the historical frameworks of colonialism, slavery, and 19th century science, we will draw on feminist, anti-racist and queer theorists, literature, and film to investigate how race and sexuality intersect in all our lives.

**4465 Feminist Political Theory** U 3

Examines concepts in feminist political theory including the articulation of feminism, the subjects of feminist theory, the relation of race, class and sexuality to gender experience, and the use of feminist theory to transform conceptions of justice.

Prereq: Not open to students with credit for PolitSc 4465. Cross-listed in PolitSc.

**4510 American Women's Movements** U 3

An interdisciplinary analysis of the American women's movements, including historical, literary, sociological, and theoretical perspectives.

Prereq: Not open to students with credit for 4510H (510H) or 510. GE diversity soc div in the US course.

**4513 Women, Government and Public Policy** U 3

An examination of policymaking on gender-related issues and the impact of women in government.

Prereq: Not open to students with credit for 513 or PolitSc 4175 (513). Cross-listed in PolitSc 4175.

**4520 Women of Color and Social Activism** U 3

Examination of multiple forms of social activism among women of color from various parts of the world concerning local, national, and international issues.

GE diversity soc div in the US course.

**4524 Women and Work** U 3

The social, cultural, and historical factors that influence women's work and the multiple ways work is gendered.

Prereq: Not open to students with credit for 524.

**4525 Feminist Critiques of Markets - Profiting from Inequality** U 3

Should sexist forms of advertising be permissible? Should we be able to charge a higher price on the basis of gender or race? Should we refuse to buy from or sell to people if our moral commitments are incompatible? Feminist Critiques of Markets will engage feminist readings and critiques in the service of answering concerns like these at the intersection of gender, sexuality, race, & class.

**4527.01 Studies in Gender and Cinema** U 3

Analysis of different film types focused on women to help students understand historical scope, theoretical frameworks, and reading strategies for understanding these films; topics vary. Repeatable to a maximum of 6 cr hrs.

**4527.02 Studies in Gender and Cinema: The British Horror Film in London** U 3

Study abroad in London, UK for study of the British horror film tradition through the lens of feminist film theory, with emphasis on genre, historical contexts, production modes, and archival research. Course work will include engagement with museums, film studios, West End Theater, horror tourism, and review of scripts available at the British Film Institute and at Leicester University. Students are strongly encouraged to have taken WGSSt 1110 prior to this course.

**4540 Women of Color: Art, Literature and Culture** U 3

Interdisciplinary feminist study of selected historical and cultural movements through writing by women of color; topics vary by genre and by era.

Prereq: Not open to students with credit for 540.

**4560 Chicana Feminism** U 3

Provides a general overview of Chicana feminist theory and practice from the early 1970's to the present.

Prereq: Not open to students with credit for 560.

**4575 Women's Studies Senior Seminar** U 3

Examination of particular contemporary issues which have crucial implications for feminist inquiry (topics vary).

Prereq: 3575.

**4597 Gender and Democracy in the Contemporary World** U 3

Highlighting perspectives from various contexts across the globe, this course explores issues of gender and democracy in the contemporary world.

Prereq: Not open to students with credit for 597 or PolitSc 4597.03 (597.03). GE cross-disciplinary seminar course. Cross-listed in PolitSc 4597.03.

**4845 Gender, Sexuality, and Science** U 3

Examination of relations between gender and science; topics include gendering of "science" and "nature," biological theories of sexual inequality, feminist critiques of science and technology.

Prereq: One course in CompStd or WGSSt, or Grad standing, or permission of instructor. Not open to students with credit for 535 or CompStd 4485 (535). Cross-listed in CompStd.

**4921 Intersections: Approaches to Race, Gender, Class, and Sexuality** U 3

Examines intersections of race, gender, class, and sexuality in various sites within American culture (e.g., legal system, civil rights discourse, social justice movements).

Prereq: One course in CompStd, WGSSt, or AfAmAST. Not open to students with credit for 545, CompStd 4921 (545), or AfAmAST 4921 (545). Cross-listed in CompStd and AfAmAST.

**4998 Capstone Project** U 1 - 5

Open to students completing a capstone project. Should be scheduled in consultation with advisor. Topics vary.

This course is graded S/U.

**4999 Distinction Thesis** U 1 - 5

Completion of a distinction thesis. Should be scheduled in consultation with advisor. Topics vary.

This course is graded S/U.

**4999H Honors Thesis** U 1 - 5

Completion of an honors thesis. Should be scheduled in consultation with advisor. Topics vary.

Prereq: Honors standing. Repeatable to a maximum of 20 cr hrs or 20 completions. This course is graded S/U.

**5193 Individual Studies** U G 1 - 9

Individual studies in women's, gender and sexuality studies as arranged with an instructor or advisor.

Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.

**5450 Global Human Trafficking: Realities and Representations** U G 3

This course will introduce students to the development of human trafficking as it has been understood and represented by governments, policymakers, the media, and popular culture. The objective of this course is to scrutinize common understandings and representations of trafficking and to consider the advantages and disadvantages of such understandings and representations.

Prereq: Not open to students with credit for Slavic 5450. Cross-listed in Slavic.

**5620 Topics in Feminist Studies** U G 3

Topics vary by course and instructor.

Repeatable to a maximum of 6 cr hrs or 6 completions.

**5624 Women and Social Change in Latin America** U G 3

Provides an overview of social change initiatives of women in Latin America and the Caribbean through analysis of women's experiences, values, strategies, and goals.

Prereq: Not open to students with credit for 624.

**5998 Undergraduate Research in Women's, Gender and Sexuality Studies** U G 1 - 3

Undergraduate research or creative activities in variable topics.

This course is graded S/U.

**7700 Feminist Inquiry I** G 3

Introduction to women's, gender and sexuality studies as an academic field of study and an orientation to the graduate program, facilities, resources, and people.

Prereq: Mast, Doct, or Grad minor standing in WGSSt.

**7701 Feminist Inquiry II** G 3

The second of a two semester course examining interdisciplinary feminist approaches to theory and methodology. The course questions divisions between power, knowledge, objects and subjects of analyses, and the practices of academic engagement. Emphasizes the connection between methodology and epistemology in feminist scholarship.

Sp Sem.

**7702 Feminist Pedagogy** G 3

Assist graduate students in meeting instructional responsibilities and developing necessary skills for college level teaching in women's studies.

Prereq: Not open to students with credit for 702.

**7720 Theorizing Power, Institutions, and Economies** G 3

Examination of feminist theoretical approaches to the material conditions of women's lives and the changing structures of social, economic, and political power.

Prereq: Not open to students with credit for 720.

**7740 Theorizing Narrative, Culture, and Representation** G 3

Designed to introduce graduate students to the central debates that have characterized feminist theories of representation.

Prereq: Not open to students with credit for 740.

**7760 Feminist Inquiry: Methods** G 3

An overview of feminist methodological issues and dilemmas and an introduction to a variety of research methods.

Prereq: Not open to students with credit for 760.

## Women's, Gender, and Sexuality Studies 467

<b>7780</b>	<b>Theorizing Global and Transnational Feminisms</b>	<b>G</b>	<b>3</b>
Provides a broad comprehension of theoretical aspects of global and transnational feminisms. Prereq: Not open to students with credit for 780.			
<b>7790</b>	<b>Research and Writing Workshop</b>	<b>G</b>	<b>3</b>
Seminar dedicated to research & writing in feminist studies, leading to a final product such as a MA paper or thesis, a dissertation chapter, an article to be submitted for peer review, or a PhD proposal intended for national funding competitions. Also may include a review of professional development skills involved with peer review publishing, the construction of curriculum vita, & other topics. Repeatable to a maximum of 6 cr hrs.			
<b>8163</b>	<b>Practicum in Women's, Gender and Sexuality Studies</b>	<b>G</b>	<b>1 - 3</b>
Credit hours for students participating in an on or off campus practicum, with cooperation with their academic advisor and practicum supervisor. Also for first year graduate students in WGSST during their second semester of teaching. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>8193</b>	<b>Individual Studies</b>	<b>G</b>	<b>1 - 9</b>
Students may register for individual directed study in subjects not covered in regular course work. Repeatable to a maximum of 24 cr hrs or 24 completions. This course is graded S/U.			
<b>8800.01</b>	<b>Topics in Feminist Studies</b>	<b>G</b>	<b>3</b>
Feminist studies on a variety of topics at the graduate level. Repeatable to a maximum of 24 cr hrs.			
<b>8800.02</b>	<b>Topics in Feminist Studies</b>	<b>G</b>	<b>3</b>
Feminist studies on a variety of topics at the graduate level. Repeatable to a maximum of 24 cr hrs.			
<b>8800.03</b>	<b>Topics in Feminist Studies</b>	<b>G</b>	<b>3</b>
Feminist studies on a variety of topics at the graduate level. Repeatable to a maximum of 24 cr hrs.			
<b>8800.04</b>	<b>Topics in Feminist Studies</b>	<b>G</b>	<b>3</b>
Feminist studies on a variety of topics at the graduate level. Repeatable to a maximum of 24 cr hrs.			
<b>8800.05</b>	<b>Topics in Feminist Studies</b>	<b>G</b>	<b>3</b>
Feminist studies on a variety of topics at the graduate level. Repeatable to a maximum of 24 cr hrs.			
<b>8800.06</b>	<b>Topics in Feminist Studies</b>	<b>G</b>	<b>3</b>
Feminist studies on a variety of topics at the graduate level. Repeatable to a maximum of 24 cr hrs.			
<b>8820</b>	<b>Topics in Power, Institutions, and Economies</b>	<b>G</b>	<b>3</b>
Advanced study of variable topics relating to gender, power, and change, both theoretical (especially materialist) and practical. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>8880</b>	<b>Topics in Global and Transnational Feminisms</b>	<b>G</b>	<b>3</b>
Various possible offerings on the subject of transnational feminisms. Repeatable to a maximum of 6 cr hrs or 6 completions.			
<b>8896.20</b>	<b>Women in Science</b>	<b>G</b>	<b>1</b>
In this seminar course, participants will read key papers concerning the status of women in the STEM disciplines (Science, technology, engineering, and mathematics). Prereq: Grad standing, or permission of instructor. This course is graded S/U. Cross-listed in EEOB.			
<b>8998</b>	<b>Research in Women's, Gender, and Sexuality Studies</b>	<b>G</b>	<b>1 - 12</b>
Graduate research not directed towards dissertation. Repeatable. This course is graded S/U.			
<b>8999</b>	<b>Research in Women's, Gender, and Sexuality Studies: Dissertation</b>	<b>G</b>	<b>1 - 3</b>
Research for dissertation purposes only. Repeatable to a maximum of 99 cr hrs or 99 completions. This course is graded S/U.			

### Yiddish

<b>1101</b>	<b>Yiddish I</b>	<b>U</b>	<b>4</b>
Yiddish 1101 is an introduction to the Yiddish language and Ashkenazic culture. You will learn to communicate in culturally appropriate ways in Yiddish. We aim to help you develop balanced skills in speaking, listening, reading, and writing. In addition, you will engage with Ashkenazic culture in Europe, Israel, and the United States. This course is available for EM credit. GE for lang course.			
<b>1102</b>	<b>Yiddish II</b>	<b>U</b>	<b>4</b>
Development of listening, reading, speaking, and writing skills. Reading of simplified Yiddish texts about Yiddish culture. Prereq: 1101. Not open to students with credit for 103, or native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GE for lang course.			

<b>1103</b>	<b>Yiddish III</b>	<b>U</b>	<b>4</b>
Development of listening, reading, speaking, and writing skills. Reading of Yiddish short stories and poems. Prereq: 1102. Not open to students with credit for 103 or 104, or native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GE for lang course.			
<b>2193</b>	<b>Independent Studies</b>	<b>U</b>	<b>1 - 4</b>
Independent studies in Yiddish and Ashkenazic studies. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions. This course is graded S/U.			
<b>2194</b>	<b>Group Studies</b>	<b>U</b>	<b>1 - 4</b>
Investigation of problems in various fields of Yiddish and Ashkenazic studies. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs or 4 completions.			
<b>2241</b>	<b>Yiddish Culture</b>	<b>U</b>	<b>3</b>
Introductory survey of political, social, ideological, and religious trends as reflected in Yiddish culture, especially folklore and literature. Prereq: Not open to students with credit for 241 or JewishSt 2241. GE cultures and ideas and diversity global studies course. Cross-listed in JewishSt.			
<b>2367</b>	<b>Jewish-American Voices in U.S. Literature</b>	<b>U</b>	<b>3</b>
Introduction to Jewish-American literature; development of expository writing and argumentation skills through systematic and critical reflection upon their own country from the perspective of an ethnic community. Prereq: English 1110 (110) or equiv. Not open to students with credit for 367 or JewishSt 2367. GE writing and comm: level 2 and cultures and ideas course. Cross-listed in JewishSt.			
<b>3371</b>	<b>Yiddish Literature in Translation</b>	<b>U</b>	<b>3</b>
Reading, analysis, and discussion of representative works and of the development of major movements and genres in Yiddish literature. Prereq: Not open to students with credit for 371 or JewishSt 3371. GE lit and diversity global studies course. Cross-listed in JewishSt.			
<b>3399</b>	<b>Holocaust in Yiddish and Ashkenazic Literature and Film</b>	<b>U</b>	<b>3</b>
Reading and analysis of texts, films and music pertaining to the topic of the Holocaust, the genocide perpetrated by Nazi Germany against European Jewry, and its impact on Ashkenazic-Jewish civilization. Prereq: Not open to students with credit for 399 or German 399. GE lit and diversity global studies course.			
<b>4721</b>	<b>Studies in Yiddish Literature</b>	<b>U</b>	<b>3</b>
Advanced study of specific literary periods, figures, and/or topics involving extensive reading and discussion of appropriate primary and secondary source materials. Repeatable to a maximum of 9 cr hrs.			
<b>4998</b>	<b>Undergraduate Research</b>	<b>U</b>	<b>1 - 4</b>
Investigation of problems in various fields of Yiddish and Ashkenazic studies. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4998H</b>	<b>Honors Research</b>	<b>U</b>	<b>1 - 4</b>
Investigation of problems in various fields of Yiddish and Ashkenazic studies. Prereq: Honors standing, and permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999</b>	<b>Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 4</b>
Research for undergraduate thesis. Prereq: Permission of undergraduate thesis advisor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>4999H</b>	<b>Honors Undergraduate Research Thesis</b>	<b>U</b>	<b>1 - 4</b>
Research for Honors undergraduate research thesis. Prereq: Honors standing, and permission of undergraduate honors thesis advisor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5193</b>	<b>Independent Studies</b>	<b>U G</b>	<b>1 - 4</b>
Independent studies in Yiddish and Ashkenazic studies. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>5194</b>	<b>Group Studies</b>	<b>U G</b>	<b>1 - 4</b>
Investigation of problems in various fields of Yiddish and Ashkenazic studies. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs or 6 completions.			
<b>5797</b>	<b>Study at a Foreign Institution</b>	<b>U G</b>	<b>1 - 9</b>
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Permission of Yiddish Program Director. Repeatable to a maximum of 9 cr hrs or 3 completions. This course is graded S/U.			
<b>6999</b>	<b>Master's Thesis</b>	<b>G</b>	<b>1 - 9</b>
Master thesis research. Prereq: Appropriate Grad standing and permission of thesis advisor and Department Chair. Repeatable to a maximum of 12 cr hrs or 4 completions. This course is progress graded (S/U).			

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7721	Studies in Yiddish Literature	G	3
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Advanced study of specific literary periods, figures, and/or topics involving extensive reading and discussion of appropriate primary and secondary source materials.  
Repeatable to a maximum of 9 cr hrs. Specific topics not repeatable for credit.

8999	Dissertation Thesis	G	1 - 9
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Research for dissertation purposes only.

Prereq: Appropriate Grad standing and permission of thesis advisor and Department Chair.  
Repeatable. This course is progress graded (S/U).